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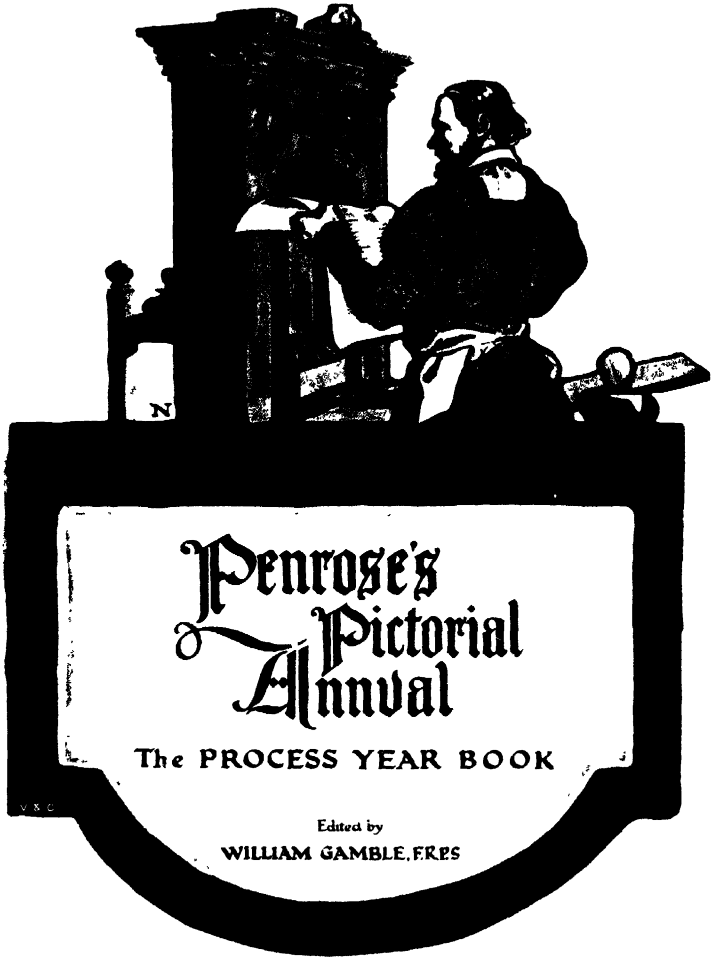

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The PROCESS YEAR BOOK

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INDEX TO ARTICLES.

Title	Author.	Page
Abortive Advertising	W H Smith	185
Advertiser's Engraver, An	Walter J Avery	141
Advertising a Motor Car	A E Astington	198
American Point of View, The	Edmund G. Gress	157
Application of Utocolour Paper to Illustrative Work	J. H. Smith, Ph.D , F I C	68
Automatic Photography	Charles Gravier	59
Borough Printing Classes, The		179
Coloriscope, The	Arthur Baron von Hubl	10
Colour Blocks from Uncoloured Copy		160
Colour Printing Equipment A Comparison	J Hodgson Hunter	62
Colour Reflection	S G Yerbury	53
Commercial Photography, A Few Important Points in	W. J Smith	204
Development in Preparing Printing Surfaces	C Alison Ker	182
Elimination of Man, The	John P Glover	103
E Pluribus Unum	H J Haughton	166
First Century of Photo-Engraving, The	Leo Hagedoorn	189
Flashing	G C Laws	175
Flat Bed or Rotary Printing Machines	J R Riddell	31
"Half-Line" Engraving for Emphasizing the Essential	Oliver A Minns,F I S A C I ond	97
Half-Tones Direct from Original Negatives	J E Marsh	25
High Speed Rotary Intaglio Printing	T. Thorne Baker, F C S , A M I F E	55
Improvements in Metzograph Negative Making	R B Fishenden, F R P S	117
Inventor of Rotary Photogravure	S H Horgan	110
J. Nicéphore Niepce's Early Photographic Work with Bitumen	Maj Gen J Waterhouse, I A.	45
Junior Technical School, The	A J Bull	177
Know the Cost	Geo H Benedict	49
Line Drawings	J R McGowing	136
Master Craftsman, A	Amos Stote	81
Metallic Printing	W Ilston Cox	57
Modern Lithography	Joseph Goodman	124
Mounting of Process Blocks, The—The £1000 Won	T. C Eamer	139
Multicolour Printing from Reversed Negatives	Edwin T Butler	121
Newspaper Illustrations of To-day	The Editor	217
No Sentiment in Business	F C Tolhurst	155
Obtaining Solid Blacks in Half-Tones	John Widdop	40
One-Exposure Cameras	Otto Pfenninger	41
On Faded Photographs	S K Lawton	47
Organised Production of Commercial Art, The	Marcus Heber Smith	207
Orthochromatic Wet Collodion	W T Wilkinson	20
Passing Show, The	Louis Flader	21
Photographic Christmas Cards	Ernest W Jackson	17
Photo-Lithography v. Offset Press	Chas T Kock	93
Photoloid— The New Photographic Material	Dr Henry E Kock	129
Polychromide Process, The	Aron Hamburger	131
Printing of Books, The	Chas T Jacobi	133
Process in Switzerland	E. J Glumart	28
Revolution in Bank-Note Engraving, A	A E Bawtree, F R P S	169
Sensitometry of Process Plates, The	C. E Kenneth Mees, D Sc., F C S	105
Showing Half-Tone Phenomena with the Lantern	N S Amstutz	45
Some Common Causes of Airbrush Failures	Frank W Brookman	70

Title	Author.	Page
Some Novelties in Book Cover Designs	Walter J. Avery	14
Spectrum and the Dry Plate, The	Alfred Dawson	33
Standardizing the Original	Sukumar Ray, B Sc	65
Status of the Stereotyper in Advertisement Production, The	T J Kelly	161
System of Multiple Photography and Automatic Focussing, The	Arthur Fruwirth	113
Talks About Newspaper Blocks	A. Mangiagalli	214
Technical Education	C J Killen	37
Two Aids for the Three Colour Block Maker	.. ..	104
Useful Dry Plate Intensifier, A	E A Biermann	79
Value of Simplicity in Type Design, The	F J Trezise..	147
Where Does the Small Electrotyping Concern Lose Money?	George E Dunton	73
Wood Engraving	Dahl & Sinnott	149
Year's Progress in Process Work, The	The Editor	1

INDEX OF ILLUSTRATIONS.

PLATES.

		Engravers, Etc	Following Text Page	Supp Page
Ann Hathaway's Cottage, Stratford on-Avon..	Collogravure ..	The London Stereoscopic Co, Ld	112	
"Beaute est Vertue"..	Planogravure..	Unwin Brothers, Ltd	—	8
Chartres Cathedral	Photogravure	The Vandyck Printers, Ltd	Frontispiece	
Commercial Illustrations	Rotary Photogravure	The Rotary Photogravure Co. ..	4	--
Cunard Line Poster	Offset Lithograph	Turner & Dunnett..	48	
Daydreams	Offset	Thos Forman & Sons	224	
"Evening Glow"	Offset-Lithograph	Turner & Dunnett..	64	-
Fashion Plate	Rembrandt Gravure	The Rembrandt Intaglio Printing Co, Ltd	xii	-
Girl in Blue, The..	Rotary Offset	Johnson, Wykes & Paine	128	
Gleaner, The..	Rotary Offset..	Offset-Litho, Ltd...	96	
Interior of a Dutch House ..	Four-Colour Offset	Waterlow Bros & Layton, Ltd	72	
La Parisienne	Rotary Photogravure	The Mezzogravure Co, Ltd ..	8	
Nature Study	Colour Gravure	Van Dyck Gravure Co	130	
Painter's Sons, The	Intaglio	F Bruckmann	6	
Rotary Offset	Rotary Offset..	City of Leeds Technical School Printing Department	92	
Scene from the Battle of Mlynarze	Intaglio-Gravure..	J Lowy	16	
Vigil, The	Formangravure	Thos Forman & Sons	2	

COLOUR PRINTS.

Title.	Process.	Engraver.	Following Text Page.	Supp Page
Antique Burmese Brass Work, A Piece of	Four-Colour ..	The Arc Engraving Co,, Ltd ..	–	38
Battle of Sciara-Sciat	Three Colour..	A Liebman & Co	–	16
Bunch of Grapes, A	Two-Colour ..	Electro-Tint Engraving Co ..	176	
Butterflies of the Yorkshire Moors	Three Colour..	Hood & Co, Ltd	—	24
Catalogue Illustration of Brass Fittings	Two-Colour ..	Arthur Cox Illustrating Co, Ltd		38
Catalogue Illustration of Machinery	Three-Colour..	The Tone Photo Engraving Co ..	—	30

TITLE	PROCESS	ENGRAVER	Following Text Page.	Supp. Page.
Catalogue Illustrations of Metal Ware	Three-Colour	.. ..	56	—
Catalogue Illustration of Tie	Four-Colour	Electro Tint Engraving Co	—	48
Children's Friend, The	Two-Colour	Acme Tone Engraving Co., Ltd	188	—
Chinese Embroidery	Three Colour	The Marshall Engraving Co	—	16
Dahlias	Three Colour	Gilchrist Bros	32	
Day Dreams	Two-Colour	The Lucas Engraving Co., Ltd	–	18
Dignity and Impudence	Two-Colour	The Coventry Engraving Co	128	
Done!	Three-Colour	Peninsular Engraving Co	168	
Engineering Catalogue Illustration	Two-Colour	London & Provincial Reproduction Co., Ltd	—	16
Enjoyment	Three-Colour.	The Engraving Co., Ltd	72	-
Entrance Hall, An	Two-Colour	Philipson & Son	140	
Entrance to Wembley Park	Three-Colour	The Art Engraving Co., Ltd	120	–
Fruit	Four-Colour	Amalgamated Press, Ltd	104	–
George IV Phaeton, A	Four Colour	David Allen & Sons, Ltd	48	-
Greeting Page	Two-Colour	Grout Engraving Co	Greeting Page	
In Mid-Ocean	Three-Colour	S. A. Cattell & Son	24	—
Is He Looking?	Two Colour	The Tone Photo-Engraving Co.	--	22
La Place Maubert, Paris	Two Colour	S. A. Cattell & Son	-	20
Madonna del Granduca (Raphael)	Three-Colour and Border	John Swain & Son, Ltd	16	-
Matterhorn, The	Three-Colour	The Art Reproduction Co., Ltd	64	–
"Meditation"	Four-Colour	.. ..	–	18
Miss Billy Bailey	Four-Colour	Anglo Engraving Co., Ltd	–	44
Miss Queenie Vincent	Four Colour	John Swain & Son, Ltd	80	-
Mob Cap, A	Three Colour	The Photochrom Co., Ltd	112	-
Motor Car Illustration	Two-Colour	J. D. Geddes, Ashworth and Meredith, Ltd	-	3
Mt. Blanc from the Italian Side	Two-Colour	The Grout Engraving Co	130	—
Old Rouen Plates	Four Colour	Walter Van der Ven & Co	-	12
Old-Time Costume, An	Three Colour.	Norfolk Studio	208	-
Padmore & Barnes' Moccasin Boots	Four Colour	David Allen & Sons, Ltd	48	
Pastorale, A	Three-Colour	Arthur Cox Illustrating Co., Ltd.	212	-
Pencil Study, A	Two Colour	The Art Reproduction Co., Ltd	—	40
Playtime	Four-Colour	Gatchell & Manning	--	22
Prior of St. Bernard Monastery, The, and Two St. Bernard Pups	Two-Colour	W. F. Sedgwick, Ltd		40
Roses	Four-Colour	The Engraving Co., Ltd	80	
Sic Transit	Two-Colour	Carl Hentschel, Ltd	160	—
Sic Transit	Three Colour	Carl Hentschel, Ltd	160	–
Rural Ireland	Three Colour	Gilchrist Bros	40	–
Santa Maria Della Salute, Venice	Two-Colour	A. B. Grohmann & Eichelbergs	224	--
Scoutcraft	Two-Colour	Photochrom Co., Ltd	160	—
Sculptor, The. E. Caldwell Spruce, Esq	Two-Colour	C. Angerer & Goschl	176	
Señora Tortola Valencia	Four Colour	London & Provincial Reproduction Co., Ltd	–	36
Stella Maris Poster Design	Three-Colour	A. E. Dent & Co., Ltd	-	24
Style of Interior Decoration	Three-Colour	Premier Engraving Co		26
Thawing Out the Pump	Two-Colour	Gatchell & Manning	184	—
'Tis Sweet to let the Memory Stray	Three Colour	Thos. Forman & Sons	32	-
Title Page	Two-Colour	Vaus & Crampton, Ltd	Title Page	
To be a Farmer's Boy	Two-Colour	S. A. Cattell & Son	—	18
Tobias Poster, The	Three-Colour	Press Etching Co	144	-
Two Useful Aids to the Colour Block Worker	Four-Colour	.. ..	164	
Typewriter Catalogue Illustration, A	Two Colour	.. ..	—	48
Waterman, The	Two-Colour	W. & G. Band, Ltd	168	

SUPPLEMENT ILLUSTRATIONS.

Title	Engraver	Plate
Bird-Eating Spider, A. By F. Martin Duncan, F.R.P.S.	A. B. Grohmann & Eichelbergs	25
By Bush and Stream, Jamaica. By W. J. Papps	W. J. Papps	47
Carton Box Machine	Gilchrist Bros	37
Catalogue Illustration of Hardware	Scott Engraving Co	38
Charcoal Study, A. By Tony Gibbons	Municipal School of Technology, Manchester	20
Chillingham Bull. By Bewick	Philipson & Son	13
Crystal Gazer, A. By E. O. Hoppé	Half-Tone Engraving Co., Ltd.	17
Decorative Design. By Hellier Denselow Studio	Hill & Co	8
Fireside Story, A, By "Daily Sketch"	"Daily Sketch"	18
Grain-Process Block	Angerer & Goschl	27
Grinding Corn in a Native Kraal. By L. B. Jenson	Electric Process Engraving Co.	42
Home of the Greys. By T. S. Laidler	Gilchrist Bros	1
Hydraulic Lead Moulding Machine	Eyre & Spottiswoode, Ltd	Text 212
"Imperator," The. By F. G. O. Stuart	A. Bourne & Co	43
Late President Kruger's Residence, The, Pretoria. By Sallo Epstein	Electric Process Engraving Co	45
Lichfield Cathedral. By M. R. Tozer	The British Photo-Engraving Co.	2
Lining Beveller Rule Work. By G. W. Prince	The Amalgamated Press, Ltd	19
Machinery Illustrations	Glasgow Engraving Co., Ltd	16
Madame Valencia. By E. O. Hoppé	Half-Tone Engraving Co., Ltd	39
Madonna Lily, The. By Freckleton Studio	E. Hamel & Co	10
Making Prawn Pots at Selsey-on-Sea. By T. W. Henry	The Anglo Engraving Co., Ltd.	26
Mending the Herring Nets. By F. M. Sutcliffe	B. Dellagana & Co., Ltd.	34
Mischief	Photochrom Co., Ltd	22
Miss Madge Fabian. By Foulsham & Banfield	Direct Photo-Engraving Co	44
Miss Marie Studholme. By Ellis & Walery	The Irish Photo-Engraving Co	23
Miss Marjorie Maude. By Dover Street Studios, Ltd	Hill & Co	35
Miss Unity More. By E. O. Hoppé	Half-Tone Engraving Co., Ltd	14
Motor Car Booklet Illustration	Marshall Engraving Co., Ltd	27
Motor Car Illustration. By J. D. Geddes, Ashworth and Meredith, Ltd	J. D. Geddes, Ashworth and Meredith, Ltd	30
Motor Catalogue Illustration	Entwistle, Thorpe & Co	5
Motor Cycle Catalogue Illustration	Wallage & Gilbett, Ltd	29
Mountain Village, A. By H. W. Fincham	Sessions & Co	9
Napier Car in Foreign Lands, The	Benn & Cronin, Ltd	6
Newhaven Fishwives. By Inglis	David Stevenson & Co.	31
News Page, Showing Arrangement of Illustrations	W. & G. Baird, Ltd	48
Nickel Steel Electro, Printed from a. By Charles Reid	Badoureau & Jones, Ltd	Text 216
Olden Time Mystery, An, Cumnor Hall. By J. R. McGowing	Bristol Photo Engraving Co., Ld	40
Promising Litter, A. By J. Walton Lee	"Sheffield Telegraph"	46
Reproduction from an Old Steel Engraving	The Coventry Engraving Co.	following 8
Roses		following 44
Señorita Tortola Valencia. By Dover Street Studios, Ld	Sessions & Co	36
Sick Doll, The. By E. T. Holding	Hill & Co	24
Silverware Catalogue Illustration	Alfred Craske & Co	12
Specimen Speedometer Illustration. By J. D. Geddes, Ashworth & Meredith, Ltd	J. D. Geddes, Ashworth and Meredith, Ltd	28
St. Mawes, Falmouth Harbour, Cornwall. By J. C. Burrow, F.R.P.S.	The Lucas Engraving Co., Ltd.	7
Study in Lighting, A. By Gill & Son	Knighton & Cutts	11
Water Lilies. By Harold G. Grainger	W. F. Sedgwick, Ltd.	32
Water Mill, A, on the Battlefield of Towton, Yorkshire. By Harold G. Grainger	London Etching Co., Ltd.	33
Woodland Scene, A. By F. G. O. Stuart	A. Bourne & Co	41
Wells Cathedral. By Godfrey Bingley	T. B. Browne, Ltd	2A
Winter. By Ernest W. Jackson	E. Hamel & Co	15
Yachting in the Solent. By West & Son	Acme Tone Engraving Co., Ltd	3

ILLUSTRATIONS IN THE TEXT.

Title.	Engraver	Page
Advertisements, A Selection of, issued by the Austin Motor Co., Ltd.	Wallage & Gilbett, Ltd.	200B
Aeroplanes Announcement Design	Joh. Enschedé & Sons	143
Afraid of Rain. By R. Braid	Benn & Cronin, Ltd.	159
Afternoon Tea. By W. Ferrier Pinkney	London & Provincial Reproduction Co., Ltd.	116
After the Fire at the Hayes Universal Printing Co.'s Works, Letchworth	The London Etching Co., Ltd.	127
America's First Policewoman. By "Daily Mirror"	"Daily Mirror"	220
Antique Furniture. By J. R. McGowing	Bristol Photo-Engraving Co., Ld.	136
Archer, Scott	Joh. Enschede & Sons	190
Bank Note Engravings. By A. E. Bawtree, F.R.P.S.	Vaus & Crampton, Ltd.	170, 171
Beach, The, Gorleston-on-Sea. By Jas. E. Tyler	The London Etching Co., Ltd.	102
Big Oak, The, Burnham. By Ellis & Walery	The Irish Photo Engraving Co.	112
Binoculars with Case Reproduced in "Half-Line"	Carl Hentschel, Ltd.	97
Book Cover Designs. By E. O. Hoppé	Marshall Engraving Co., Ltd.	14-16
Boxers, The. By K. F. Bishop	Hill & Co.	45
British Pluck. By J. West & Son	Acme Tone Engraving Co., Ltd.	31
Bubbles. By J. E. Jukes	Marshall Engraving Co., Ltd.	10
Catalogues, A Selection of, issued by the Austin Motor Co., Ltd.	Wallage & Gilbett, Ltd.	200A
Car Illustration, A	Carl Hentschel, Ltd.	100
C. B. Crawshaw, Esq. By James Bacon & Sons	"Yorkshire Post"	219
Chasms, The, Port St. Mary, I.O.M. By Margaret S. Earnshaw	The Johnston Engraving Co.	33
"Children's Tales" Cover Design	Joh. Enschede & Sons	141
Cost Record		51
Cost Table		50
Cotton Bonnet, The. By F. M. Sutcliffe	B. Dellagana & Co., Ltd.	28
"Cylinders and Other Ancient Oriental Seals," Reproduction of Title Page of. By Frederick W. Goudy	Press Etching Co., Ltd.	91
D'Ambrose, Cardinal	Joh. Enschede & Sons	193
Daguerre	Joh. Enschede & Sons	190
Density and Exposure Diagrams		106, 108
"Don't Drink it all, Mate." By W. T. Green	The Lucas Engraving Co., Ltd.	96
"Door in the Wall, The." Reproductions of Announcement Pages. By Frederick W. Goudy	Press Etching Co., Ltd.	82, 83
Dorothy. By Freckleton Studio	Arc Engraving Co., Ltd.	37
Dovedale, Derby. By Martin J. Ridley	T. B. Browne, Ltd.	27
Dumbarton v. Queen's Park. By Fred. W. Plews	"Daily Record and Mail"	224
Extremes Meet. By Frank Stonelake	Lucas Engraving Co., Ltd.	213
Fiddler, The. By F. A. Williams	Knighton & Cutts	128
Fishing Smack, A. By Jas. E. Tyler	Arc Engraving Co., Ltd.	24
Flashing. By G. C. Laws		176
"Forum, The," Reproduction of Cover Page of. By Frederick W. Goudy	Press Etching Co., Ltd.	87
Fox Talbot	Joh. Enschede & Sons	190
Gleaner, The. By R. Braid	Half Tone Engraving Co., Ltd.	65
Greenstead Church, Essex. By W. J. Harrington	"Daily News and Leader"	222
Gurnards Head, Cornwall. By J. C. Burrow, F.R.P.S.	The Lucas Engraving Co., Ltd.	44
Happy Urchin, A. By W. T. Green	The Lucas Engraving Co., Ltd.	57
Heading Design. By Norfolk Studio		207
Hereford Cathedral. By John P. Glover	London & Provincial Reproduction Co., Ltd.	103
Highland Courtship, A. By R. Braid	Half Tone Engraving Co., Ltd.	53
Initials	Garratt & Atkinson	93, 121, 131, 139
In Memory. By M. R. Tozer	The British Photo-Engraving Co.	177
"International Photography," Reproduction of Cover Page of. By Frederick W. Goudy	Press Etching Co., Ltd.	88
In the Straits of Messina. By Charles H. Horton	The Johnston Engraving Co.	64
In Wintertime. By K. F. Bishop	Hill & Co.	39
Italian Boy, An. By S. J. Beckett, F.R.P.S.	Sessions & Co.	214

Title	Engraver	Page
Jack's Courtship By R Braid	Benn & Cronin, Ltd	124
Juvenile Channel Swimmer, A By "Evening Post"	"Evening Post," Jersey, C I	221
Karl Klic		111
Kittens By R Braid	Half-Tone Engraving Co., Ltd	138
Lady Fitzwilliam's Drawing-Room By "Yorkshire Observer"	"Yorkshire Observer"	221
Landing the Catch By K. F Bishop	The Tone Photo Engraving Co	181
Last Load, The By James E Tyler	A Bourne & Co	168
Letter-head Designs	Joh Enschedé & Sons	144
Levy, Louis E.	Joh Enschede & Sons	194
Levy, Max	Joh Enschede & Sons	194
Lights of the Slum By M R. Tozer	The British Photo-Engraving Co	185
Little Boy Blue By J. E. Jukes	Marshall Engraving Co	189
Little Mary O'Hara By Sachs	"Yorkshire Post"	219
Lullaby By Gill & Son	Knighton & Cutts	78
Maxwell, Clark	Joh Enschedé & Sons	192
May We Come in Your Bed? By A L. Hitchin	Philipson & Son	73
Meal-time By Jas E Tyler	The Johnston Engraving Co	184
Meisenbach, G	Joh. Enschedé & Sons	194
Metropolitan Museum of Art Catalogue, Reproduction of Page from By Frederick W Goudy	Press Etching Co., Ltd	85
Miss Jean Aylwin By Ellis & Walery	The Irish Photo-Engraving Co	186
Miss Maidie Andrews. By Ellis & Walery	The Irish Photo-Engraving Co	59
Miss Marie Studholme By Ellis & Walery	E Hamel & Co.	105
Modern Cave-dweller, A By Ernest Marriage, F R P S	E Hamel & Co	161
Monument to Lord Leighton, St Paul's Cathedral By W H A. Fincham	Marshall Engraving Co, Ltd	174
Native Quarter, Port Said By Charles H Horton	The Johnston Engraving Co	36
Nièpce	Joh Enschedé & Sons	190
Norfolk Studio Clients' Reception Room		209
General Office		208
Idea and "Copy Writing" Department		210
Managing Artist's Room		210
Order Form		212
One of the Designers' Studios		211
Photographic Studio		211
Norfolk Wedding, A By J E Marsh	J E Marsh	26
Oak Room, An. By J. R. McGowing	Bristol Photo-Engraving Co, Ld	137
Off to the Fishing By K F Bishop	Hill & Co	68
Old Oak, An Bradgate Park By P P Wade	The Lucas Engraving Co, Ltd	47
Old Palace, The, Arezzo By Ernest Marriage, F.R.P S.	E Hamel & Co	113
On the Tyne at North Shields By A L. Hitchin	Knighton & Cutts	163
Opening Meet of the Stainton Dale Foxhounds at Cloughton By "Leeds Mercury"	"Leeds Mercury"	223
Photographic Christmas Cards By Ernest W Jackson		17-19
Picking Wild Flowers. By Freckleton Studio	Arc Engraving Co, Ltd	41
Poitevin, Alphonse Louis	Joh Enschedé & Sons	192
Ponton, Mungo	Joh Enschedé & Sons	192
Poultry Cross, The, Salisbury. By Margaret S Earnshaw	The Johnston Engraving Co	25
Pretsch, Paul	Joh Enschedé & Sons	192
"Reflecta" Signs—		
Showing Methods of Mounting the Different Forms of Fittings (Emphasized) into Letters	Carl Hentschel, Ltd.	99
Units Composing "Reflecta" Signs	Carl Hentschel, Ltd	98
Roses By E T Holding	The Tone Photo-Engraving Co.	132
Rowley Regis Church in Flames By George Dawson	"Birmingham Gazette"	224
Rumbling Bridge By A Murray	"Sheffield Telegraph"	206
Sammy By F Martin Duncan	Anglo Engraving Co, Ltd	156
Scene from "A Scrape o' the Pen" By Ellis & Walery	Irish Photo-Engraving Co.	188
Scotch Washing, A By R Braid	The Watford Engraving Co	217
Simplicity in Type Design, Examples of	London & Provincial Reproduction Co, Ltd.	147-148
Slater, Mr. W H		180
Spectators By K F Bishop	Hill & Co	21
Stippled Background, A.	Carl Hentschel, Ltd.	101

Title	Engraver.	Page
Stranded By F. A Williams	Knighton & Cutts	197
Study	Garratt & Atkinson	129
"Sultane" Cigarettes Advertisement Design	Joh Enschedé & Sons	142
Summer Hours. By Graystone Bird	Gilchrist Bros	13
Sunset at Blackpool By E E Hindley	S A Cattell & Son	ix.
Sussex Cottages By Fred J Taylor	"Daily News and Leader"	222
Tailpiece Design By Norfolk Studio		212
Tailpieces	Garratt & Atkinson 54, 67, 80, 130,	140
"Three Score and Ten" By F M Sutcliffe	B Dellagana & Co, Ltd	40
Toucher, A By F W Cotterell	Acme Tone Engraving Co, Ltd	72
Turning Round. By Jas E Tyler	Arc Engraving Co, Ltd	30
Ullswater Lane, An By E E Hindley	S A Cattell & Son	49
Washing Day By Kenneth F. Bishop	London & Provincial Reproduction Co, Ltd.	61
"Wilson's Photographic Magazine," Reproduction of Cover Page of By Frederick W Goudy	Press Etching Co, Ltd	89
Woodbury, Walter B	Joh Enschedé & Sons	194
Wood cut for a Motor Car Catalogue	Dahl & Sinnott	151
Wood-cuts for Trade Catalogues	Dahl & Sinnott	152-153
Wood-cuts for Various Purposes	Dahl & Sinnott	154
Wood-cuts of Door Plates	Dahl & Sinnott	149
Wood-cuts of Machinery	Dahl & Sinnott	150

S. A. Cattell & Son. E. E. Hindley, photo.

Sunset at Blackpool.

ENGRAVERS' ADDRESSES.

	Page
A1 Engraving Co., Ltd., 5, Tudor Street, London, E.C.	120
Acme Tone Engraving Co., Ltd., Callow Land Studios, Watford	31, 72, 188—*3*
Allen, David, & Sons, Ltd., Wealdstone, Middlesex	48
Amalgamated Press, Ltd. (Process Dept.), Lavington Street, Southwark Street, London, S.E.	104, *19*
Angerer & Göschl, C., 16/1, Ottakringerstrasse 49, Vienna	176—*21*
Anglo-Engraving Co., Ltd., Milford House, Milford Lane, London, E.C.	156—*26, 44*
Arc Engraving Co., Ltd., 4 and 6, Farringdon Avenue, London, E.C.	24, 30, 37, 41—*38*
Art Reproduction Co., Ltd., 3 and 4, Plough Court, Fetter Lane, London, E.C.	64—*40*
Badoureau & Jones, Ltd., Poppin's Court, Fleet Street, London, E.C.	216
Baird, W. & G., Ltd., Royal Avenue, Belfast	168—*48*
Benn & Cronin, Ltd., 46, Trafalgar Street, Brighton	124, 159—*6*
"Birmingham Gazette," Birmingham	224
Bourne, A., & Co., 73, Ludgate Hill, London, E.C.	168—*41, 43*
Bristol Photo-Engraving Co., Ltd., The, 35, Broad Street, Bristol	136, 137—*40*
British Photo-Engraving Co., Vicar Lane, Coventry	177, 185—*2*
Browne, T. B., Ltd., 163, Queen Victoria Street, London, E.C.	27—*2*A
Cattell, S. A., & Son, 1, Dorset Buildings, Salisbury Square, London, E.C.	ix, 24, 49—*18, 20*
Coventry Engraving Co., The, Cow Lane, Coventry	128—*8*
Cox (The Arthur Cox Illustrating Co., Ltd.), 63-64, Ludgate Hill, Birmingham	212—*38*
Craske, Alfred, & Co., 5, East Harding Street, Fetter Lane, London, E.C.	*12*
Dahl & Sinnott, Hartford, Conn.	149-154
"Daily Mirror" (Engraving Dept.), 23/29, Bouverie Street, London, E.C.	220
"Daily News and Leader," Bouverie Street, London, E.C.	222
"Daily Record and Mail," Renfield Lane, Glasgow	224
"Daily Sketch," Tudor Street, London, E.C.	*18*
Dellagana, B., & Co., Ltd., 62 and 62a, Greengate, Salford, Manchester	28, 40—*34*
Dent, A. E., & Co., Ltd., 7, Broadway, Ludgate Hill, London, E.C.	*24*
Direct Photo-Engraving Co., Ltd., 38, Farringdon Street, London, E.C.	*41*
Electric Process Engraving Co., Johannesburg, S.A.	*42, 15*
Electro Tint Engraving Co., 1227-1229, Race Street, Philadelphia, U.S.A.	176—*18*
Engraving Co., Ltd., The, 20, Queen Street, Wolverhampton	72, 80
Enschedé, Joh., & Sons, Haarlem, Holland	141, 142, 143, 144
Entwistle, Thorpe & Co., Woodall's Buildings, 42, Deansgate, Manchester	*5*
"Evening Post," Jersey, C.I.	221
Eyre & Spottiswoode, Ltd. (Electrotyping Dept.), Great New Street, E.C.	212
Forman, Thos., & Sons, Nottingham	2, 32, 224
Garratt & Atkinson, Warwick Works, Ealing, London, W.	54, 67, 80, 93, 121, 129, 130, 131, 139, 140
Gatchell & Manning, 27-41, South Sixth Street, Philadelphia, U.S.A.	184—*22*
Geddes, Ashworth & Meredith, Ltd., 44, 45, 46, Fetter Lane, London, E.C.	*3, 28, 30*
Gilchrist Bros., Queen's Place, Claypit Lane, Leeds	13, 32, 40—*1, 37*
Glasgow Engraving Co., Ltd., 30, John Street, Glasgow	*16*
Grohmann, A. B., & Eichelbergs, Stockholm	224, *25*
Grout Engraving Co., 7, Bridewell Place, London, E.C.	Greeting Page, 130
Half Tone Engraving Co., Ltd., 16, 20 and 25, Farringdon Avenue, London, E.C.	53, 65, 138—*14, 17, 39*
Hamel, E., & Co., Palmerston Street, Woodborough Road, Nottingham	105, 113, 161—*10, 15*
Hentschel, Carl, Ltd., 182-184, Fleet Street, London, E.C.	97, 98, 99, 100, 101, 160
Hill & Co., 41-42, Shoe Lane, London, E.C.	21, 39, 45, 68—*8, 24, 35*
Hood & Co., Ltd., St. Bride Works, Middlesbrough	*24*
Irish Photo-Engraving Co., Oriel House, Westmoreland Row, Dublin	59, 112, 186, 188—*23*
Johnston Engraving Co., The, 41, Snow Hill, London, E.C.	25, 33, 36, 64, 184
Knighton & Cutts, The Expert Engraving Co., 4 to 7, Red Lion Court, Fleet Street, London, E.C.	78, 128, 163, 197—*11*

	Page
" LEEDS MERCURY," Albion Street, Leeds	223
LIEBMAN, A. & CO, via Flaminia 41A, Rome	*16*
LONDON & PROVINCIAL REPRODUCTION CO, LTD, Thornton Road, Bradford	61, 103, 116, 147, 148—*16, 36*
LONDON ETCHING COMPANY, 3, Holborn Place, High Holborn, London, W C	102, 127—*33*
LOWY, J, Parkgasse 15, Vienna III	16
LUCAS ENGRAVING CO, LTD, THE, 76 & 78, Slaney Street, Birmingham	44, 47, 57, 96, 213—*7, 18*
MARSH, J E., c/o "Norwich Mercury" Co, Ltd, Norwich	26
MARSHALL ENGRAVING CO, LTD, 12 & 14, Farringdon Avenue, London, E C	10, 14, 15, 16, 174, 189—*16, 27*
MUNICIPAL SCHOOL OF TECHNOLOGY, THE, Manchester	*20*
PAPPS, W J, Government Press, Kingston, Jamaica	*17*
PENINSULAR ENGRAVING CO, Detroit	168
PHILIPSON & SON, Lisle Street, Newcastle-upon-Tyne	73, 140- *13*
PHOTOCHROM CO, LTD, 7 to 10, Old Bailey, London, E C	22, 112, 160
PREMIER ENGRAVING CO, LTD, 35 & 36, Hosier Lane, London, E C.	*26*
PRESS ETCHING CO, LTD, 12, Wine Office Court, Fleet Street, London, E C.	82, 83, 85, 87, 88, 89, 91, 144
SCOTT ENGRAVING CO, 32, Elder Street, Edinburgh	*38*
SEDGWICK, W F, LTD, 237, Blackfriars Road, London, S E	*32, 10*
SESSIONS & CO, 4-5, Gough Square, Fleet Street, London, E C	214—*9, 36*
" SHEFFIELD TELEGRAPH " (Sir W. C Leng & Co), Sheffield	206—*16*
STEVENSON, DAVID, & CO 12, Brandon Street, Edinburgh	*31*
SWAIN, JOHN, & SON, LTD, 89, Shoe Lane, London, E C	16, 80
TONE-PHOTO ENGRAVING CO, THE, 105 & 106, Lionel Street, Birmingham	132, 181 -*22, 30*
VAN DER VEN, WALTER, & CO, Antwerp	*12*
VAN DYCK GRAVURE CO, 180/190, West Fourth Street, New York, U S A	130
VAUS & CRAMPTON, LTD, 31 32, Kirby Street, Hatton Garden, London, E C	Title Page, 170, 171
WALLACE & GILBERT, LTD, Masshouse Lane, Birmingham	200A, 200B—*29*
WATFORD ENGRAVING CO, Loates Lane, Watford, Herts	217
" YORKSHIRE OBSERVER," Piccadilly, Bradford	221
" YORKSHIRE POST," Albion Street, Leeds	219

ARTISTS, PHOTOGRAPHERS, PRINTERS AND PUBLISHERS.

AUTOCHROME CO	32, 40
ASSOCIATION OF DESIGNERS, LTD, THE, 46, Chancery Lane, London, E C.	144—*24, 26, 40*
BACON, JAMES, & SONS, 38, Commercial Street, Leeds	219
BAWTREE, A E, F R.P.S, "Lynton," Manor Park Road, Sutton, Surrey	170, 171
BECKETT, S J, F R P S, 295, Euston Road, London, N W	214
BIANCHINI, A	*16*
BINGLEY, GODFREY, Thorniehurst, Headingley, Leeds	*2A*
BIRD GRAYSTONE, 38, Milsom Street, Bath	13
BISHOP, K. F., 86A, Bridge Street, Warrington	21, 30 45, 61, 68, 181
BRAID, ROBERT, Almond Bank, Livingstone, Mid-Calder	53, 65, 124, 138, 159, 217
BRUCKMANN F., Munich, Bavaria	6
BURROW, J C, F R P S, Camborne Cornwall	44—7
BUTLER, E T, 26, Craven Park, Willesden, London, N.W.	120
CARLTON STUDIO, Carlton House, Gt Queen Street, Kingsway, London, W C	24
CITY OF LEEDS TECHNICAL SCHOOL PRINTING DEPARTMENT	92
COTTERELL, F. W The Dell, Watford	72
CURTIS PUBLISHING CO, THE, Philadelphia, U S A	184
DAWSON, GEORGE, c/o "The Birmingham Gazette," Birmingham	224
DOVER STREET STUDIOS, LTD., 38, Dover Street, Mayfair, London, W.	80—*35, 36, 44*
DUNCAN, F MARTIN, F R.P S, The Cottage, The Avenue, St. Margarets, Twickenham	156—*25*

Page
EARNSHAW, MARGARET S., Hurlbote Grange, Handforth, Manchester 25, *33*
ELLIS & WALERY, 51, Baker Street, London, N. .. .. 59, 105, 112, 186, 188—*23*
EPSTEIN, SALLO, Johannesburg, S.A. *15*
FINCHAM, H. W., 70, Hillfield Avenue, Hornsey, London, N. .. .. 160, 174—*9*
FOULSHAM & BANFIELD, LTD., 49, Old Bond Street, London, W. *14*
FRECKLETON STUDIO, Photographers, 63, Long Row, Nottingham .. .. 37, 41—*10*
GARRATT, S. J., c/o Messrs. Turner & Dunnett, Eagle Chambers, Fenwick St., Liverpool .. 64
GILL & SON, The Head Street Studio, Colchester .. .. 78—*11*
GLOVER, JOHN P., Roydon Manor, Diss, Norfolk 103
GRAINGER, HAROLD G., 41, Brudenell Grove, Hyde Park, Leeds .. .. 176—*32, 33*
GREEN, W. T., 27, Upper High Street, Winchester 57, 96
HARRINGTON, W. J. *222*
HELLIER-DENSELOW STUDIO, 40, Gunnersbury Lane, London, W. *8*
HENRY, T. W., 1, Lynton Villas, Selsey-on-Sea *26*
HINDLEY, E. E., 86, Talbot Road, Blackpool .. .. ix, 49
HITCHIN, A. L., 71, Windsor Terrace, South Gosforth, Northumberland 73, 163, 168
HOLDING, E. T., Innisfail, Marryat Road, Wimbledon, London, S.W. 132, *24*
HOPPÉ, E. O., F.R.P.S., Millais House, Cromwell Place, South Kensington, London, W. 14, 15, 16, 128—*14, 17, 36, 39*
HORTON, C. H., 76, Stokes Croft, Bristol 36, 64
JACKSON, ERNEST W., 35, West Cliff Terrace, Harrogate .. .. 17, 18, 19—*15*
JAYNE, DR. D., & SON, Philadelphia, U.S.A. *2*
JENSON, L. B., Johannesburg, S.A. *12*
JOHNSON, WYKES & PAINE, Leicester 128
JUKES, J. E., 116, Shields Road, Newcastle-on-Tyne 10, 189
LAIDLER, T. S., 46, Cardigan Terrace, Heaton, Newcastle-on-Tyne *1*
LAWS, G. C., Lewin Cottage, 25, Lewin Road, Bexley Heath, Kent 176
LEE, J. WALTON, Dilston, Corbridge-on-Tyne *16*
LONDON STEREOSCOPIC CO., LTD., THE, 3, Hanover Square, Regent Street, London, W. .. 112
MARSH, J. E., c/o "Norwich Mercury" Co., Ltd., Norwich 26
MARRIAGE, ERNEST, F.R.P.S., Doneen, Algers Road, Loughton, Essex 113, 161
McGOWING, J. R., 1, Chelsham Road, Clapham, London, S.W. .. .. 136, 137—*10*
McLEISH, DONALD, 63, Marquess Road, Canonbury, London, N. .. .. 64, 130—*40*
MEZZOGRAVURE COMPANY, LTD., THE, 190, Strand, London, W.C. 8
MURDOCH, MISS HELEN MESSINGER, F.R.P.S., c/o Messrs. Brown, Shipley & Co., 123, Pall Mall, London, S.W., and 270, Baylston Street, Boston, U.S.A. .. .. 224—*16*
MURRAY, A., Rumbling Bridge, N.B. 206
NORFOLK STUDIO, Racquet Court, Fleet Street, London, E.C. 207, 208, 212
OFFSET-LITHO., LTD., West Dulwich, S.E. 96
PINKNEY, W. FERRIER, 69, Osborne Road, Newcastle-on-Tyne 116
POLYCHROMIDE CO., 38, Dover Street, Mayfair, London, W., & New York 130
PLEWS, FRED W., c/o "Daily Record & Mail," Renfield Lane, Glasgow 221
PRINCE, G. W. *19*
REID, CHARLES, The Studio, Wishaw, N.B. 216
REMBRANDT INTAGLIO PRINTING CO., LTD., THE, 36, Basinghall Street, E.C. xii
RIDLEY, MARTIN J., Photographer, Boscombe, Bournemouth *27*
ROTARY PHOTOGRAVURE CO., THE, Passaic, N.J., U.S.A. 4
SACHS, ALBERT, Manningham Lane, Bradford 219
SOUTHWART, J. A., 14, George Street, Thornton, Bradford *18*
STUART, F. G. O., 57-61, Cromwell Road, Southampton *41, 43*
SUTCLIFFE, F. M., 25, Skinner Street, Whitby .. .. 28, 40—*34*
TAYLOR, FRED J. *222*
THOMPSON, K., 91, Falmouth Road, Heaton, Newcastle-on-Tyne *22*
TOZER, M. R., Lutterworth Road, Nuneaton .. .. 177, 185—*2*
TURNER & DUNNETT, Eagle Chambers, Fenwick Street, Liverpool 48, 64
TYLER, JAMES E., North Street, Halstead, Essex 24, 30, 102, 104, 168, 184
UNWIN BROS., LTD., 27, Pilgrim Street, London, E.C. *8*
VANDYCK PRINTERS, LTD., THE, 107, Clifton Street, Finsbury Square, London, E.C. *Frontispiece*
VEY, GEORGE, L.C.C. Central School of Arts and Crafts *20*
WADE, P. P. 47
WATERLOW BROS. & LAYTON, LTD., Broken Wharf, Upper Thames St., London, E.C. .. 72
WEST & SON, 84, Palmerston Road, Southsea .. .. 31, 188—*3*
WILLIAMS, FRED A., 9, Russell Road, Westbury Park, Bristol 128, 197

Printed by
The Rembrandt Intaglio Printing Co. Ltd
England

THE YEAR'S PROGRESS IN PROCESS WORK.

By THE EDITOR.

IN our last volume we expressed the opinion that photographic processes were entering on a new era, and that the half-tone block, having reached the limit of its perfection, must now yield its place for some purposes to the intaglio process, familiarly known as rotary photogravure. This latter process has made a wonderful advancement during the past year, and is now being used extensively for daily and weekly newspapers. So far no English daily newspaper has taken it up, but in Germany there are several journals that have for a long time past been regularly using it. There are also two weekly periodicals—one in Germany and one in Holland—wholly printed, both as to text and illustrations, by the intaglio process. Several other journals—notably the *Illustrated London News* and *L'Illustration* (Paris) are regularly issuing supplements produced in this manner. We note also an increasing use of the process for book insets and other purposes, all this tending to show the growth of the process in popular favour. We hear, moreover, from various directions reports of the intentions of publishers of newspapers and periodicals to make use of the process as soon as the arrangements can be made.

The Displacement of Half-Tone.

All this tends to show that in the near future half-tone blocks will be displaced to a considerable extent in illustrated books and journals, and probably also in our more important daily and weekly newspapers. It seems to be conclusively proved that intaglio-printed illustrations have hit the public taste better than half-tones. There is an artistic quality and a photographic richness of tone in the former that has never been secured in half-tone, even with such aids as matt papers and matt or double-tone inks. These qualities cannot be obtained by the process worker with all his skill in fine etching, nor by the printer with all his elaborate efforts in underlaying and overlaying The half-tone is a flat-surfaced print at its best, whilst the intaglio has the relievo effect of colour piled up in proportion to light and shade, which is just what an artist desires to see as the counterpart of the methods he adopts in painting a picture.

THE INTAGLIO ADVANTAGE.

The printer, too, is faced with the ever-present difficulties of handling half-tone blocks, embracing the necessity of using the best of machines, rollers, inks, paper and skilled labour. If with all this care, and all this attention to detail the half-tones do not reach the artistic standard of the intaglio work it is not to be wondered at that those in search of the best that can be produced by reproductive processes should turn to intaglio printing, which not only offers the desired qualities, but has the advantages of more simple and rapid press work, with cheaper paper and ink, and less labour cost, so far as the printing is concerned.

RELATIVE COST OF INTAGLIO.

It may be urged that the cost of producing the engravings is greater than in making half-tones, but when all things are taken into account it is doubtful whether the cost of illustrating and printing a journal will be greater in the one case than in the other. In any comparison of cost the engraving and printing must be taken together to get a reliable indication of the merits of the two processes on the score of economy. Granting that the process work is more expensive there is to set off against it the fact that no make-ready on the machine is needed; the speed of printing is from three to five times greater, and there is a reduced paper and ink bill. With such manifest advantages it is not to be wondered at that the intaglio process captivates the publishers of high-class illustrated journals.

INTAGLIO FOR NEWSPAPER WORK.

How does it appeal to the publisher of an ordinary daily or weekly newspaper, making no pretensions to the highest class of printing? The apparently insurmountable difficulty of getting really clean, sharp and rich results from half-tone blocks, when they have to be stereotyped and printed on rotary machines, makes the newspaper man turn with an envious eye to the results obtained in journals using the intaglio process. The rich photographic effect obtained, even on the commonest paper, is decidedly captivating. All the difficulties of stereotyping, make-ready, avoidance of set-off and the like troubles disappear and the newspaper rotary machine runs in its old way, printing the text, whilst the illustrations are printed into spaces left for them on the sheet

by coupling the intaglio printing machine tandem-fashion to the ordinary rotary news machine.

ARE ROTARY DIFFICULTIES REMOVED ?

Of course it may be asked whether the difficulties removed from one end of the machine are re-created at the other end. Experience does not prove that to be the case. Some additional care is no doubt needed, and there is additional expense in the machine room, but we think it is quite balanced by the saving over the old way, and by the vastly improved results obtained. We do not pretend to say that this intaglio process is suitable for newspapers only giving two or three illustrations a day, but for newspapers making a special feature of illustrations the gain is worth all the trouble and expense of the extra process.

THE INCREASED COST OF ENGRAVING.

At present the increased cost is mostly in the engraving of the cylinders compared with the making of the simple and cheap zinc half-tone, but as time goes on the disparity in this respect will be lessened, as the operators get more used to the work, though the relative cost can never be equalled. The intaglio will always be the more costly process to work. Thus the advantage must be looked for chiefly in the improved quality of the intaglio illustrations, and consequently increased popularity of the journals using them.

PRINTING TEXT WITH ILLUSTRATIONS.

If it should be ultimately found possible to print both the text and the illustrations from the intaglio-engraved cylinder then a great revolution in newspaper production will be witnessed, and the present newspaper rotaries, with their stereo plant and other cumbrous accessories, will be scrapped. But is it likely that such a vast change can be brought about ? We think not, at any rate so far as the journals which cater for the news-loving public are concerned. We can see no possibility of the intaglio process being so quickened that it can equal the time now taken to stereotype the formes. For a weekly, or bi-weekly, or for the production of an illustrated daily which does not cater for stop press news the intaglio process worked in a systematic way might conceivably be quick enough, but it will never do for newspapers where seconds count in getting the paper on the streets or on the trains. Thus the intaglio process will find its place as a means for the production of high-class illustrated papers where time can be given to do the work properly.

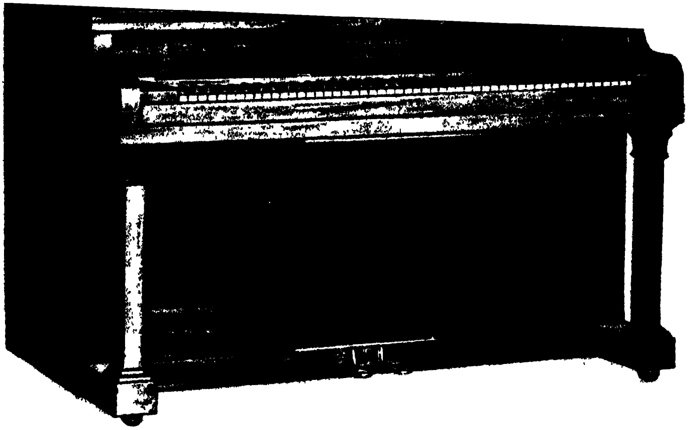
PROGRESS OF INTAGLIO COLOUR WORK.

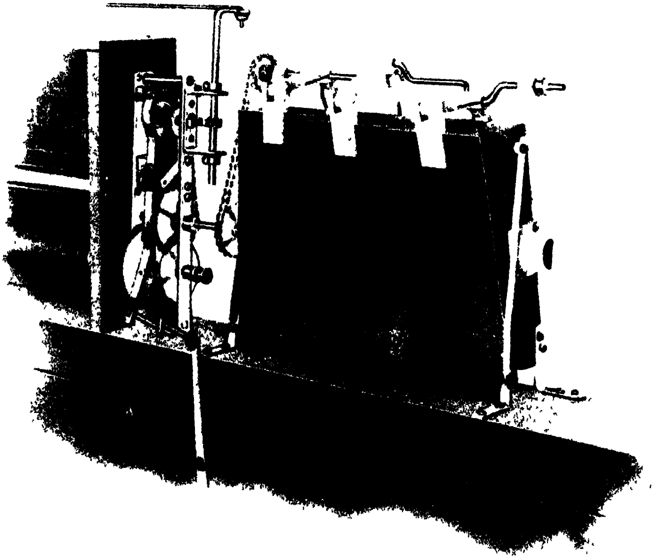
Concurrently with the development of the intaglio process for monochrome work as a rival to half-tone there is going on a quiet advancement in the direction of using the process for colour work, and here again the present supremacy of the half-tone block is threatened. Those who have seen the fine results obtained by the Rembrandt Intaglio Co. in this direction have been profoundly impressed with the possibilities of the process in this direction. Their work, however, aims at the highest quality of art reproduction for producing prints worthy of framing, and apparently we must look elsewhere for the commercial exploitation of the process. The firm who have so far showed the greatest success commercially in this direction are the Van Dyck Gravure Co., of New York, who are working the processes of Mr. C. W. Saalburg. We are able to present with this volume an example of commercial colour-work suitable for advertising purposes in the inset entitled, "Nature Study," which is reproduced from a photograph taken by flashlight in the Dover Street Studios with one of the Polychromide cameras, to which reference is made elsewhere in this volume. The negatives were made simultaneously, and the plates were etched without any handwork whatever. They were printed on the Van Dyck Gravure Co.'s sheet-fed presses at the rate of 2,200 copies per hour, at a cost less than half-tone, and with less spoilage. As an early example of this promising development in colour work we think our readers will view it with considerable interest.

INTAGLIO BOOK INSETS.

In the matter of book insets by the intaglio process we present some good examples in this volume, and we have pleasure in introducing in our pages a new contributor in this line, the Rotary Photogravure Co., of Passaic, N.J. This firm have based their work on experience gained in textile printing, and are producing some notably good work in a commercial way. Their inset shows the adaptability of the process to commercial catalogue work.

The inset by the Rembrandt Intaglio Company maintains the high reputation for excellence attained by this firm, and the frontispiece by the Vandyke Printers, Ltd., of Bristol, who were the second to successfully enter the field in this country, is worthy of careful attention. Messrs. Bruckman, of Munich, who were the first to introduce the rotary intaglio process on the continent, give us a fine example of their work. The Mezzogravure Co. continue to maintain a standard of high quality in the specimen of their work which we publish. A newcomer in the field is the old-established firm of John Swain & Son, Ltd., who, having attained the highest excellence in other processes, now add equally fine results by intaglio to their previous accomplishments. The Penrose rotary





The Rotary Photogravure Co.,
Passaic, N. J., U. S. A.

COMMERCIAL ILLUSTRATIONS.

By the Rotary Photogravure Process.

gravure process, now distinguished by the trade-mark "Velogravure," continues to make steady progress and its results will bear comparison with any yet attained. Thus this intaglio process goes on from one fine accomplishment to another and has now won a regular place amongst the processes in every-day use. Every year will undoubtedly show fresh progress until it attains the zenith of its perfection, when possibly it will in its turn yield place to something still better.

OFF-SET PRINTING.

Off-set lithographic printing continues to claim widespread interest and attention, but it is difficult to discover the extent of the progress that is being made in the application to it of photographic processes. We doubt, indeed, whether much is being done in that direction in this country, though a great amount of commercial lithography is undoubtedly being done in this manner. The greatest progress is being made in America, and Mr. Stephen H. Horgan, a well-known writer on process matters, and a competent observer of the trend of things in the graphic arts, points out that it was only seven years ago that the first off-set press was installed in America, and it took a couple of years to convince the sceptical printers that off-set printing could be as good as direct printing. During the past five years, however, about 700 off-set presses have been installed. These machines must be displacing a good deal of work that formerly went through other channels. In fact, as one of the trade organs puts it : "Every order that goes to the lithographer means one order lost to the photo-engraver." The letterpress printer must correspondingly suffer a loss of work. Specimens we have seen of the best off-set work from America show that, although very pretty and soft effects are being obtained, there is still wanting the crispness and fulness of the letterpress half-tone, whilst in colour work from process plates the effects obtained are "washy" and "tinty," strength and full-bodied colour being wanting. We feel, after seeing this work, that we must renew the opinion we expressed in our last volume that off-set printing has its limitations when applied to process work, and it can never displace the half-tone block for many purposes. Especially is this so in the case of the artistic trade catalogue. The effects obtained in this line are very charming as artistic specimens, but they can never have the same commerical value as a high-class letterpress catalogue containing half-tone blocks.

GRAIN PRINTS FOR OFF-SET.

If off-set lithography is to really rival half-tone we think it must be by the adoption of a different method of reproduction, more suited to this style of printing. The half-tone made with a ruled screen is not suited to off-set printing and never will be. What must be looked for is some method of making grained prints, and the Metzograph screen offers the ideal thing, if only process workers would seek to understand its use. There are, no doubt, many tricks yet to be learnt in handling it, just as half-tone workers found in using the cross-lined screen in the early days, and the ability to get good results will only come by constant practice with the screen. Mr. R. B. Fishenden, the Chief Assistant Instructor in the process department at the Manchester Technical School, has done good service by showing the varied effects that may be obtained with this screen, according to the way it is handled. In the present volume he explains the discovery of an important point for securing greater vigour and detail by the expedient of replacing the screen with a clear glass of the same thickness during a portion of the exposure. According to the proofs we have seen the improvement is most marked. These proofs are printed from lithographic plates and they are conclusive evidence of the suitability of Metzograph work for this method of printing. Mr. Wheeler, the inventor of the Metzograph screen, has greatly improved the manufacture of these screens during the past year, and we should strongly recommend those who have so far ignored this beautiful method of reproduction, or who have previously failed in working it, owing to an imperfect understanding of the principle of its manipulation, to now examine carefully its possibilities.

A NEW GRAIN PROCESS.

During the past year we have had submitted to us specimens of a new grain process, invented by Mr. J. Gaskin Wood, of Edinburgh. In this case we understand that no screen is used, an ordinary continuous tone negative being printed direct on to the zinc plate, and the grain being formed somehow in the course of printing and development. The production of these plates is claimed to be simple, certain and cheap, and they are very suitable for off-set printing. Further details will be awaited with interest.

ADVANCES IN PHOTO-LITHOGRAPHY.

During the past year progress has been made in certain processes of photo-lithography to which we made reference in our last volume. Mr. Shawcross has introduced an improved Amphitype process, tending towards greater simplicity and certainty of working. At the same time his Identograph process is found to work very practically, though its advantage of enabling a negative image to be obtained from a negative or a positive from a positive is held by some to be an objection, as the most general requirement is a positive print from a negative. Thus it is necessary to first make a positive in order to get from it a

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positive print. It is very simple and quick to make a positive by contact with the negative, but, of course, it is an additional operation, which is not viewed with favour in these hurrying days. For this reason Mr. Shawcross essays to improve his older Amphitype process, which certainly yields beautiful results with ease and simplicity.

Mr. Adolf Tellkampf has further improved his direct photo-lithographic process, which has been described as an improved Vandyke process, the print being obtained direct from the drawing instead of a negative having to be made. His method of oil development is a great advance on water development and removes many difficulties. This inventor expects very soon to put on the market his process of exposing direct on to the zinc plate. This will save many difficulties in handling large plates, and should be especially useful for poster enlargements.

The bromoil process continues to be used in the production of poster enlargements on paper, which can be inked up and treated as a photo-lithographic transfer. It is a singular fact that the principle employed in this process was laid down and a method described right back in the eighties by Pizzighelli, and also by Warnerke, but like so many other good ideas it lay dormant for want of application.

Collotype and Photogravure.

So little is heard of collotype that one might suppose it was extinct, but as a matter of fact there are signs of a revival, and some English firms who have cultivated the process are finding they can get as much work as they can do. A few are experimenting with or actually using the process for colour reproduction, but on the whole we are inclined to think that collotype as a regular commercial method is quite out of the running, and it is hardly likely that it will be restored to the important position it formerly occupied.

Photogravure, by the Talbot-Kliç process is altogether overshadowed by the rotary gravure, and the advantage it had for plate printing of short runs is threatened by power-printed flat-bed gravure, which is tending to come to the front. There are now several presses on the market designed to print from flat plates, but, of course, it is impossible to print plates prepared in the ordinary photogravure manner with the dust grain. It is necessary to introduce a screen in order to assist the wiping.

Half-Tone and Colour Work.

In monochrome half-tone there is little to report. The work done is of first-class quality and much of the commercial work for catalogue purposes is of very fine quality, in fact can hardly be surpassed. We hear of a process of photographing the catalogue objects—especially bright articles—in such a way as to reduce to a minimum the amount of retouching now required. The " half-line " process, referred to in an article elsewhere in this number, is an interesting departure, which may prove very useful in catalogue illustrations. Two-colour work continues to yield fine results, as the numerous specimens in this volume show. Three and four-colour work keeps up to a high standard, but does not seem to present any novelty. Collodion emulsion is used still to a considerable extent for large work, whilst panchromatic dry plates are mostly employed for relatively small pictures. The old indirect process is practically superseded by the direct process.

VARIOUS PROCESSES.

The Printex process, which is a very practical method of duplicating work on the plate by means of a step-and-repeat apparatus, is making great progress and has found its greatest application so far in the preparation of large sheets of postage and other stamps. A lot of very fine results in this line have been obtained.

Mr. Bawtree further points out the weaknesses of the present system of banknote printing and indicates how it is possible to apply photomechanical methods to this work, with great saving of cost and time.

The process of " Fabro " printing, which consists in imitating a textile surface, is yielding some fine results, and the method should be particularly useful for commercial purposes.

ELECTROTYPING AND STEREOTYPING.

In these kindred processes there is not much that is new to report. Aluminotypes are the latest thing in stereotypes. They require a special plant to cast them, and the process is only suitable for type formes, and these for bookwork. It is too slow and costly for newspapers.

Newspaper men still cry out concerning the difficulty of stereotyping half-tones for the rotary printed journal. Dry flong has come largely into use, but it does not help with half-tones. Probably one of the principal reasons why good half-tones cannot be secured in the newspapers is the want of time for the stereotyping and printing under newspaper conditions. There is an opening for anyone who can improve the newspaper half-tone.

For newspapers of local circulation which make a speciality of illustration the problem of securing good printing of the half-tones can be solved by the use of a flat-bed perfecting web press, such as the Cossar, manufactured by Messrs. Payne & Sons (Otley), Ltd., which prints from type and blocks. This eliminates the difficulties due to stereotyping, and enables make-ready to be done as on sheet-fed presses. Though the speed is not equal to the ordinary rotary printing from

curved stereo plates it is sufficient for a local pictorial daily or weekly. One newspaper that has made successful use of the Cossar press is the *Oxford Journal*, which for over three years past has been issued as a pictorial weekly with most effective and well-printed half-tones.

In electrotyping the nickel-type of the nickel-steel electro continues to grow in favour, especially for duplicating half-tones and colour blocks. We have heard that all-steel electros are to be next in the candidature for public favour. Lead moulding continues to be practised and is acknowledged to yield the finest results. Wet blackleading has become an almost universal process in America, but English electrotypers still seem to be shy of it.

THE OUTLOOK.

The foregoing roughly indicates the position of processes to-day. What is the outlook? On every hand we see that process illustrations are being more and more utilized in every direction. There is every indication that the demand for illustrations is growing, and an increasingly high standard is being set up. On the whole we think the process man is endeavouring to live up to his obligations. If he now shows no great novelty he at any rate is conscientiously turning out wonderfully good and uniform quality. A few imbued with the spirit of invention are slowly and silently working with the view to evolving new processes or improving the old ones. We do not doubt but that out of these efforts will arise some remarkable new developments. It would be foolish to say that the processes of to-day are so good that they cannot be improved. We have seen such wonderful progress in photo-mechanical processes during the last twenty years that we are justified in believing there must be correspondingly much to be done in the next decade or two. There can be no finality where human thought is being constantly applied along a definite line of effort. Competition and the ever-insistent demand for speed stimulates men's minds in striving towards higher achievements. In our work as in all other human effort we can say "The best is yet to be." In this connection it seems appropriate to quote Tennyson's stirring lines:—

> "Not in vain the distance beacons. Forward, forward let us range,
> Let the great world spin for ever down the ringing grooves of change.
> Yet I doubt not through the ages one increasing purpose runs,
> And the thoughts of men are broadened by the process of the suns."

THE COLORISCOPE.

By ARTHUR BARON VON HÜBL.

Translated by H. O. KLEIN, F.R.P.S.

MARSHALL ENGRAVING CO — J. E. JUKES, photo

BUBBLES

THE qualitative examination of light which illuminates a room is beset with many difficulties, because our eye, after prolonged exposure to certain rays, loses its susceptibility of being stimulated by them.

Daylight, for instance, is generally considered white, although careful examination often shows an excess of 10 per cent of red or blue rays, and although our artificial illuminants are extremely rich in orange and yellow rays, they give us the impression of being colourless, except we are able to compare with really white light.

It is well known that the character of a painting is greatly influenced by the variations in the spectral composition of the illuminant, and that colour comparisons are almost impossible with certain artificial lights.

To determine the composition of light and to control its influence in many branches of arts and industries, where the variations in the colour of illuminants cause a great many errors of judgment, the use of elaborate spectral photometers or colorimeters was requisite and a standard light of very definite and carefully measured composition was needed for comparison.

In the following, however, a very simple instrument is described, which is known by the name of "Coloriscope." This instrument does not furnish us with numerical values, but it enables us to ascertain without much difficulty the colour of light.

No comparison standard is requisite In this instrument two films are used which are of a grey colour, spectroscopically different in composition, though visually of exactly the same colour when viewed by transmitted pure white light. Any variation from white light, however, will instantly be recorded by differences in the colour of the films.

This phenomenon is most strongly marked if we compare a grey obtained by mixing reddish blue and yellow with a grey derived from a pure black and white mixture. The absorption spectra of both are illustrated in fig 1. The genuine grey is represented by the straight line, which represents its absorption curve, recording an even diminution of luminosity of all the rays of the spectrum.

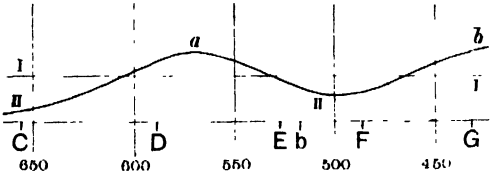

Fig 1

Curve II., however, shows the absorptive conditions of a grey composed of 0 7 filter blue and 0 9 filter yellow, transmitting chiefly red and blue rays

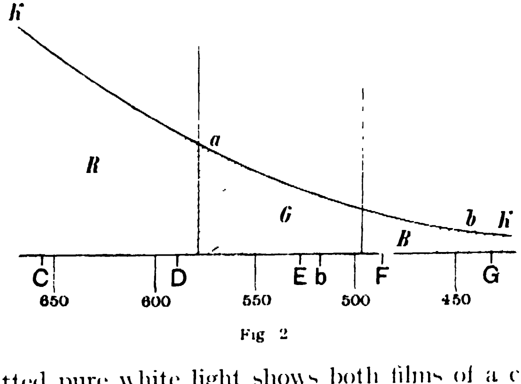

Fig 2

Transmitted pure white light shows both films of a colourless grey tint, but any variation in the spectral composition of the illuminant produces colour. Electric incandescent light, for instance is very rich in red rays, less in green and very poor in blue rays, and if the intensities of the spectral components are introduced as ordinates we obtain curve K.K. of fig. II.

The surfaces R. G and B. characterize the sum of all red, green and blue rays and the colour of the light depends upon the ratio of the three components. If we view electric incandescent light through a grey glass we decrease the intensity of all rays proportionally and the ratio of R. G. B. and the colour of the light remains unaltered If, however, this complex ray mixture of an incandescent electric light passes through the grey film which is produced by a mixture of yellow and blue dyes, we observe a diminution of rays represented by the maxima *a* and *b*.

Such absorption will record a greater reduction of green than of blue light If these "light quantities" were equal—as is the case with daylight—the colour of the incandescent light would remain unchanged

As this is not the case the excess of red rays is bound to produce the effect of colouring the light transmitted through the film, intensely red *

The grey produced by black and white mixture records a general diminution of light intensity, but remains grey; the other, however, will appear brilliantly red in colour.

If the illuminant has a bluish hue one of the grey films will appear blue green.

In order to enable convenient comparison of both films they are fixed in tube R side by side, as shown in fig 3. and viewed through a lens

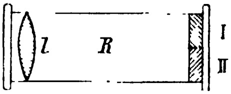

Fig 3

l of about 8 cm focus. If we now desire to examine the colour of a light, we hold the instrument against a sheet of white paper, which is illuminated by the light under examination and view the grey films.

If both films appear of a similar grey colour, the light must be termed white. If, however, the light contains an excess of blue or red rays, one of the grey films will appear bluish or reddish when compared with the other grey film

The light of the electric incandescent lamp causes an intense red colour induced in one of the grey films, but that of burning magnesium is almost devoid of red rays.

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* For similar reasons the screen plate of the Autochrome shows a reddish tint in artificial light, having an absorption spectrum very like in composition to that produced by a blue and yellow dye mixture

As our eye is extremely sensitive to any deviation from neutral grey we are able to detect very minute colorations in daylight or artificial illuminants.

The coloriscope enables us to ascertain the colour of light pervading interiors, which is influenced by coloured wall-paper or draperies, and to locate or by means of compensation screens arrange certain spots in a room offering pure white illumination. This instrument is of highest value in autochrome photography, where compensation filters are to be adjusted according to the abnormal red or blue light excess in the illuminant or in three-colour photography to enable alteration of filter ratios

It must be understood, however, that the instrument may only be used with light of a more or less continuous spectrum: daylight, gas, paraffin, acetylene, etc. The light of a red darkroom lamp would record no difference in the grey films, because both transmit red rays, neither should we expect light of glowing vapours like that of the Mercury Vapour Lamp, which have a spectrum composed of a few lines, to affect the colour of the grey films of the coloriscope

With such exceptions, we may make the general statement that every light which shows the two grey films of the "Coloriscope" colourless grey is pure white light

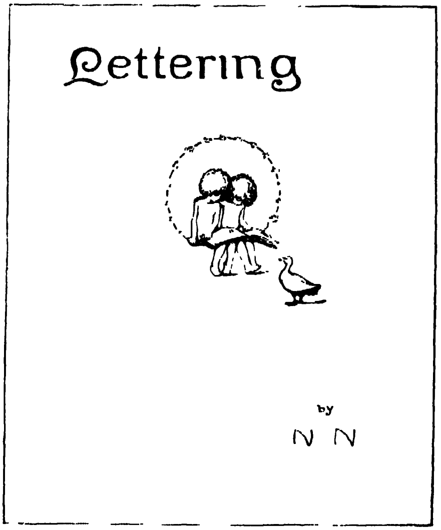
Gilchrist Bros

Graystone Bird photo

Summer Hours

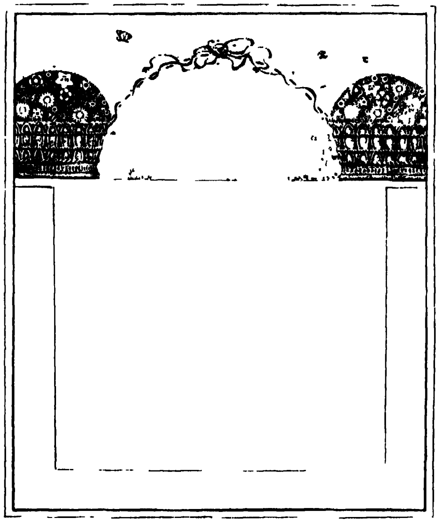
SOME NOVELTIES IN BOOK COVER DESIGNS.

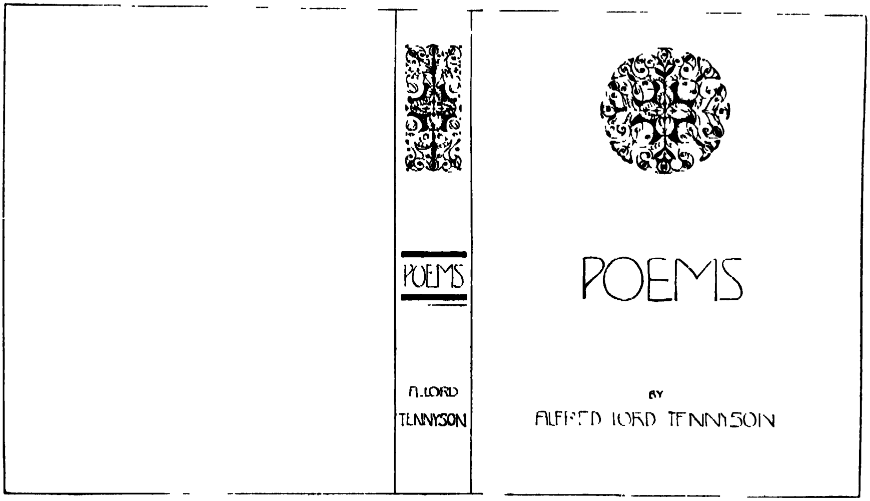
By WALTER J. AVERY.

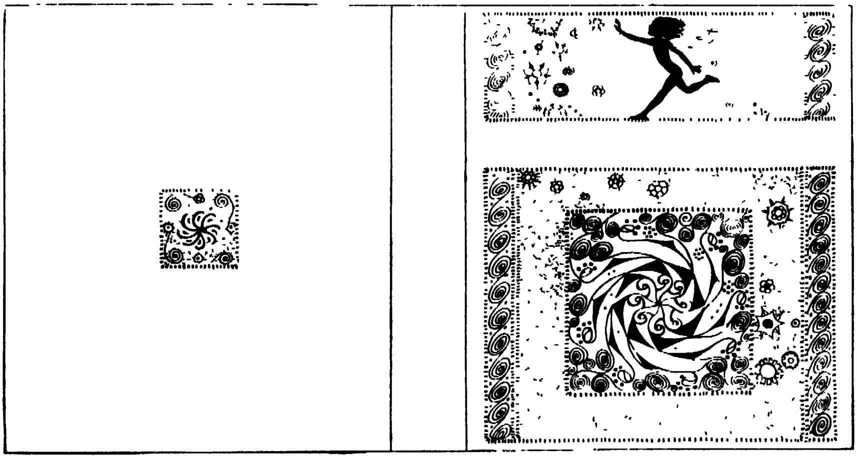


THE advance in the style of book cover designs during the past few years is made apparent in the reproductions accompanying this article. It is not necessary to go back many years to recall the style of cover used for books of the cheap class, when it seemed to be the idea that the more colours that could be crowded upon a cover the better, and in many cases a picture printed in several colours, representing some scene referred to in the book, formed part of the cover design. This was considered to be not only attractive, but in very good taste. Nowadays, cover designs have lost this feature, and instead of being over-decorated they have become quite simple in design. The charm and attractiveness of the cover designs shown in this article lies in their simplicity.

Mr. E. O. Hoppé, the artist whose work I illustrate, has been very successful in introducing this style of cover design, and the pub-




POEMS
A. LORD
TENNYSON
POEMS
BY
ALFRED LORD TENNYSON

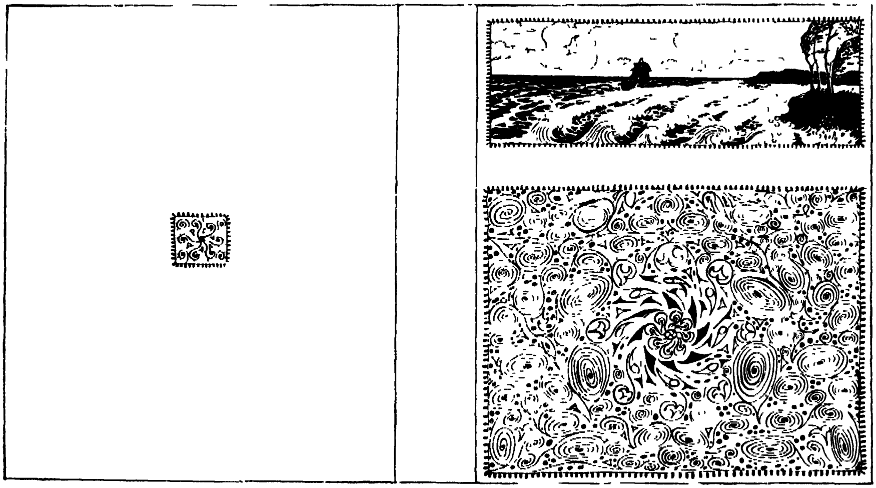


lishers of some dainty little books have been eager to obtain his designs. The class of books for which these designs are most suitable are poetry books, Christmas books, birthday books, novels, etc. A style of stamping these cover designs is to simply block them plain, without any gold or colour, but any of the designs herewith would look extremely pretty if printed in gold on a Japanese paper or on vellum.

This style of cover designs is becoming very popular, because its attractive appearance seems to add considerably to the value of the book.

The effect of a good cover on a book cannot be under-estimated, and it is the opinion of a number of publishers and authors that a well-designed cover, because of its pleasing appearance, considerably adds to the sale of the book. It is no exaggeration to say that, at any rate in some cases, the cover sells the book. Hence the importance of selecting the most refined, yet simple designs, such as are shown in the illustrations in this article.

The blocks used to illustrate this article were reproduced by the Marshall Engraving Co.



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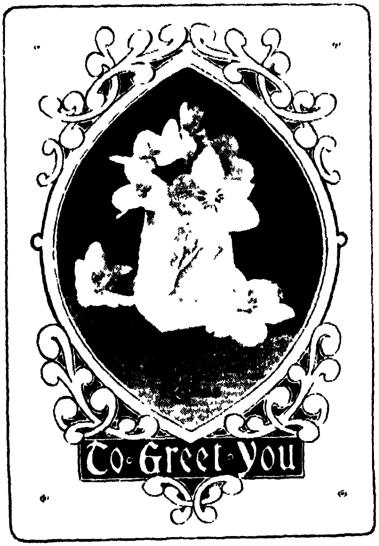
SCENE FROM THE BATTLE OF MLYNARZE

PHOTOGRAPHIC CHRISTMAS CARDS.

By ERNEST W. JACKSON.



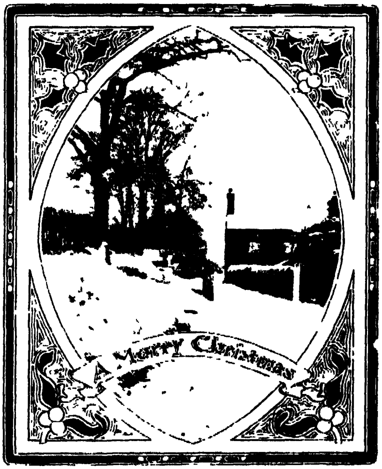
THERE is a great charm in making one's own Christmas cards, and it seems only natural the photographer, whether amateur or professional, should utilize his negatives to produce a greeting card at once novel and pretty, of his own devising. Some photographers are satisfied to purchase the so-called Christmas mounts decorated with embossed and coloured designs, and simply paste on (or slip in) their pictures, but for those who wish to send to their friends something a little out of the common run, this procedure savours too much of the ordinary Christmas card of the shops, which can be bought by all and sundry.

No great difficulty may be anticipated with regard to the home manufacture of Christmas cards. Simplicity, daintiness, and some decorative value are chiefly to be aimed at. The range of subjects is a wide one. Some will choose a portrait, a very appropriate subject, since it has an interest of its own apart from the good wishes expressed in the "motto." Others may prefer to be represented by their best picture of the year, regardless of any special suitability of subject. Snow and hoar-frost scenes are obviously very seasonable and as a rule a local view, taken at any period of the year, will be found attractive and interesting. Studies of still life in the form of winter fruits, sprays of holly and mistletoe or viands and table accessories suggestive of Christmas "cheer" afford much scope for effective grouping. Flowers, too, are always satisfactory from a decorative point of view Photographs of Christmas roses, of course, are particularly suitable for Christmas cards.

If we are able to draw as well as photograph, the scope as regards originality becomes wider. The photographic pictures may be combined with borders or other decorative work in pen and ink, wash, or any other medium preferred. But this is not absolutely necessary, as very pretty and novel effects may be obtained by a combination of two or more photographs. There is, for instance, the double card where one looks through an opening in the top fold and sees a picture underneath. This may be carried out very effectively as a home production by combining a decorative front design, say, of flowers, ferns or grasses with a landscape or seascape. The opening in the top photograph may be cut square or in some fanciful way, and if well carried out the effect really is to produce two pictures, one seen through the top fold and another when the card is fully opened The attractiveness of the design will be greatly enhanced if the top and lower photographs are of different tints, say a sepia-tinted picture (easily obtained by using self-toning P. O. P.) in conjunction with a black and white gaslight, bromide, or platinum print

A touch of humour in a Christmas card is a very desirable quality, and can be obtained by purchasing some of the very funny objects which are to be bought at the shops where small fancy goods are sold. The curiously shaped dogs and cats one sees, for instance, have a touch of the bizarre about them and are very amusing. These may be photographed either separately or in combination with the quaint human figures also to be obtained, so as to make up an episode that would be very entertaining and amusing to the younger generation of photographers. Such figures are by no means expensive.

Those who have a taste for colouring may exercise their skill in this direction by tinting their photographs. When done with discretion, taking care not to overdo the colouring, the results are very attractive. Matt surface papers, such as platinotype or carbon-velox, "take" the colours best. Ordinary water-colours may be used, but there are several kinds of special colours sold by the photographic dealers which are to be preferred. These colours being transparent, it is only necessary to wash in what artists term the "local colour" as the shading is already provided by the photographic print itself.



The introduction of hand-drawn "motto" work of course necessitates some ability in lettering, but by a little ingenuity this difficulty may easily be overcome. For instance, mottoes may be cut out from old commercial Christmas cards, and if neatly trimmed and tastefully "placed" on to our own designs the effect will usually be satisfactory. If the production is a combination design, say a photograph with a border in pen and ink and a motto, we can simplify and improve matters very considerably by re-photographing the whole to any desired size, then, from the negative so obtained, any number of copies may be printed off as required. A slow plate should be used and endeavour made to secure a bright sparkling negative that will not only give the clearness of the pen-and-ink work, but also retain faithfully the half-tones of the photograph.

The examples of photographic Christmas cards here given will, we hope, serve to incite many who have not hitherto applied their photography to the purpose, to give to the little messages of goodwill which they send at the close of the year, just that personal touch and interest which is given by the fact that they are the product of the sender himself, and exemplify his taste and pastimes.

ORTHOCHROMATIC WET COLLODION.

By W. T. WILKINSON.

WHEN making negatives from line originals upon yellow paper, the addition of a little eosine to the collodion and the use of a Wratten's K1 or K2 filter will make all the difference in the negatives, but the dark-room illuminant must be red, not bright yellow.

A formula for the eosine is this :—

Eosine	1 dram.
Alcohol	10 ounces.

10 minims of this are added to each ounce of ripe bromo-iodised collodion.

The addition of eosine makes no alteration in the ordinary working of the collodion, so long as the dark-room illumination is correct for the altered colour sensitiveness of the collodion film. Given a good dark blue print (ferro prussiate), from which to produce a line block, showing black lines on white ground, this eosine-sensitized collodion gives good results, the first image being easily converted into a negative

The glass plate must have a substratum of albumen or gelatine, the rest of the procedure is as usual except that a K3 filter is used, which will make the exposure about ten times longer than when no filter is used.

When the image is developed, and after well washing, the plate is immersed in a solution of

Potassium bromide	2 ounces.
Water	10 ounces.

for five minutes, again washed, and, in a good white light immersed in

Potassium permanganate	30 grains
Water	20 ounces
Sulphuric acid	1 dram

again wash and develop a negative image with

No. 1 Hydrokinone	120 grains
Potassium bromide	60 grains
Water	10 ounces
No. 2 Caustic potash	60 grains
Water	10 ounces

Use equal parts and develop thoroughly, wash, intensify with copper bromide and silver nitrate, bleach with iodine, clear or cut with potassium cyanide, finally blackening up with sulphide.

If the blue print is a light one the lead intensifier may have to be used after the cutting, but this is not usually required.

THE PASSING SHOW.

By LOUIS FLADER, Chicago

Hill & Co. K. F. Bishop photo

SPECTATORS

IT'S strange, but true, that whilst many men have devoted their time, intellects and energies toward perfecting the scientific and mechanical features of the photo engraving industry, very few have even thought of the commercial phases of this alluring and enticing business. Your photo-engraver is an altruist, if ever there was one. He delights in spending his time and money in creating new and better methods, and when he accomplishes his desires he generally offers all he has to an unappreciative public.

The photo-engraver, perhaps due to his close proximity to art and artists, seems to have taken for his motto, "Art, for art's sake." He is content to work hard, assume the usual and at times unusual— business risks, give his best thoughts and years to a business that is extremely wearing, and when compared with other lines calls for far more painstaking and undivided attention than any other calling we can think of. All of this he does for a percentage of profit that would cause other business men to turn up their noses in disgust and contempt.

All honour to those who have unselfishly, and in most cases without thought of profit, perfected the photo-engraving process. Satisfaction is their pay— albeit, a starvation wage. They may console themselves with the thought that the fruits of their efforts are daily helping to create fortunes for manufacturers, merchants and business men in general. It is almost a mockery of fate that the art of photo-engraving can do so much for the users of the product and nothing at all for those who have created it and who keep it alive and progressive, frequently at their own expense.

Nor is this peculiarity confined to the manufacturing photo engravers of one country. All seem to suffer from the same lack of business sense

All have the same suspicions, the same lack of confidence, the same lack of understanding and the same antipathy to advice and knowledge.

A man about to start in any other business, will investigate conditions, learn something of his market, acquaint himself with costs, get a good idea of selling prices and profits enjoyed in that market and then begin business with a definite idea of his future

A man going into the photo-engraving business is absolutely care free from everything except the thought as to where he can get a crew of workmen to turn out the best plates, which he will offer to sell at the lowest prices. In America, it takes about two years for the average proprietor to cut his eye-teeth, and in some this interesting performance is postponed indefinitely. Wisdom teeth are a rarity in the craft. I have had the experience of talking with quite a few men who were about to engage in business and they reminded me very much of that nursery rhyme " Hoppety hop, the barber shop, to get a stick of candy." They were that happy and childishly innocent. All they wanted was to see the wheels moving They had a great desire to make plates in their own shop, to be a boss, as it were

A new idea has sprung up. It is as old as business itself, but new in the photo-engraving industry. It can best be described in the terse term " Business for Profit."

To call that idea new or to even suggest it as a necessity to business men would cause them to laugh and then to express pity for the one who offered it. Every business man knows that he is in business for profit, for if he is not in business for profit what is he in business for ?

In America, we have had our business pioneers in the photo-engraving industry as well as in others Some of them have been preaching the gospel of profits for years, to meet with scant attention and certainly with no great honours at the hands of those who needed it most. It is said that the fool is stronger in his conceit than the wise man in his wisdom, and truer words were never spoken when you apply that saying to the men engaged in the photo-engraving business Many there are who will doubt and sneer, few who will think and analyse

The situation, however, is not hopeless The work started by some daring spirits years ago in the face of the most pernicious opposition, composed of ridicule, calumny and ignorance, is nevertheless going forward, and to-day, through the offices of the International Association of Manufacturing Photo-Engravers, a knowledge of costs is being instilled into the minds of men that never had it before and who certainly need it.

To Mr. Robt. S Denham belongs the credit for arousing photo-engravers out of their state of coma. Not that he was the first man to talk intelligently upon the cost of production, but he first presented a real, scientific and modern cost system to engravers, one in which the facts as shown were of such a revolutionary character as to cause all to sit up and take notice. It is true that few, if any, believed him at first, but a great many set out to prove him wrong, only to find themselves converts to his teachings There are many to-day, who do not agree with Mr. Denham in all the details of his cost-finding system, but all agree that the knowledge of costs is of prime importance, and without it no sane man would attempt to do business

It is not the intention to go into detail in this article, neither time nor space permitting it. It is with cost systems as with politics and religion We may differ, and differ conscientiously, on the methods to be pursued, but we agree that governments and religion are necessary to our welfare.

The writer has been in the photo-engraving business in one capacity or other for a good many years, but up to quite recently could never get any information as to the essentials of the business Talk to a shoe manufacturer and he will tell you very glibly that shoes cost him a certain definite sum to manufacture. He knows how much is paid out for leather, he knows his labour cost, he knows the selling cost and he knows the percentage of profit represented in each sale. The same thing may be said of manufacturers in every other line.

Ask a photo-engraver, and he will hum and haw, guess at figures and tell you nothing, for the very good reason that he knows nothing. If his monthly expenses are three thousand dollars, he will tell you that he has to do a three thousand dollar business to break even , after that sum has been turned over the rest is profit. All he knows is that he pays out a lot of money, hustles like the mischief for orders, has a hard time to collect his bills and a still harder time to pay them

We now know, and the information is public, that minimum half-tones cannot be produced on an average for less than $2.00. We know that minimum zinc etchings cost at least $1 00 That both are often sold below those figures has nothing to do with the facts in the case, but a great deal with the photo-engraver's lack of business sense

We have learned that 40% of the total expense of an engraving business is represented in chargeable labour We have also learned that the material expense amounts to 10% of the total expense and that 33% of all materials bought are wasted That is to say, only 67% of the materials can be sold in the shape of finished products Non-chargeable labour represents 10% of the total expenditure (this does not include lost time) The shop expense is 12% the office expense is 24% and interest and depreciation amount to 3%, thus making a total of 100%

The above figures are round numbers and represent average conditions They may vary in individual cases, but not to any great extent.

Not to confuse you, but to show you that there is more than one way of skinning a cat, here are the figures showing an analysis of expenditures based upon the cost per camera per day The camera in

Designed by
CARLTON STUDIO
CARLTON HOUSE
LONDON

HALF-TONES DIRECT FROM ORIGINAL NEGATIVES.

By J. E. MARSH

The Johnston Engraving Co. — Margaret S. Earnshaw, photo

The Poultry Cross, Salisbury

THE speeding-up effect of competition up-to-date machinery, spacing of plant, etc., has caused news blocks to be produced in about twenty minutes. But still the process for ordinary reproduction remains practically the same as that of twenty years ago, fine etching, in some cases, being the only part of the process found possible to be dispensed with.

And yet a few years ago, a method was discovered by which it was possible to produce engraved screen blocks in about fifteen minutes.

The positive screened image on metal in acid-resisting enamel is produced direct from the photographic negative thus avoiding three processes *viz.*, print from original negative, half-tone negative from print, print on metal from negative. In fact the print ready for etching is produced in practically two operations taking original negative and obtaining screen print therefrom.

The illustration on next page was secured by the above method. It is not submitted as a specimen of half tone, but as the result of an experimental attempt, under not ideal conditions, for the photographic part of the process was carried out at home after business hours, the apparatus being an ordinary half-plate enlarger, with a temporarily arranged easel to hold screen and plate.

The screen distance was obtained by placing strips of 16 B W gauge zinc between screen and plate two thicknesses being necessary.

The method adopted is similar to the making of a bromide enlargement, in fact a screen bromide print, taken under these conditions shows the possibilities of the process for securing a splendid range of tones.

The working data of the result shown are as follows:—

Exposure—through screen on to Paynetype plate, 5 minutes at

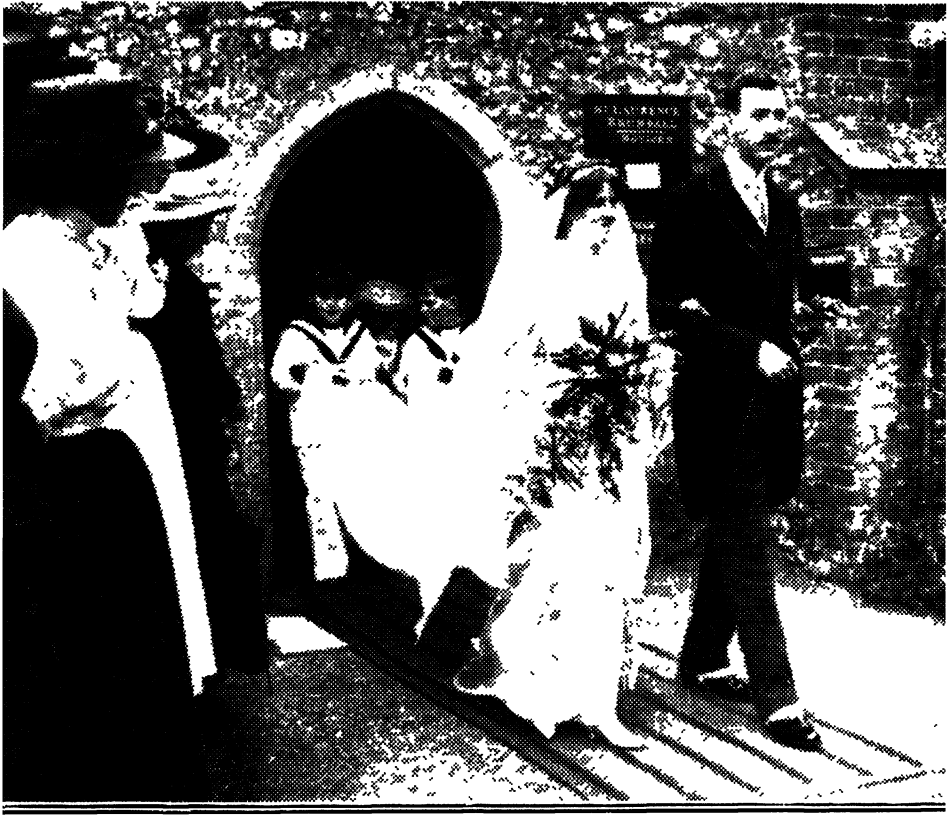


Photo and Block by J. E. Marsh

A Norfolk Wedding.

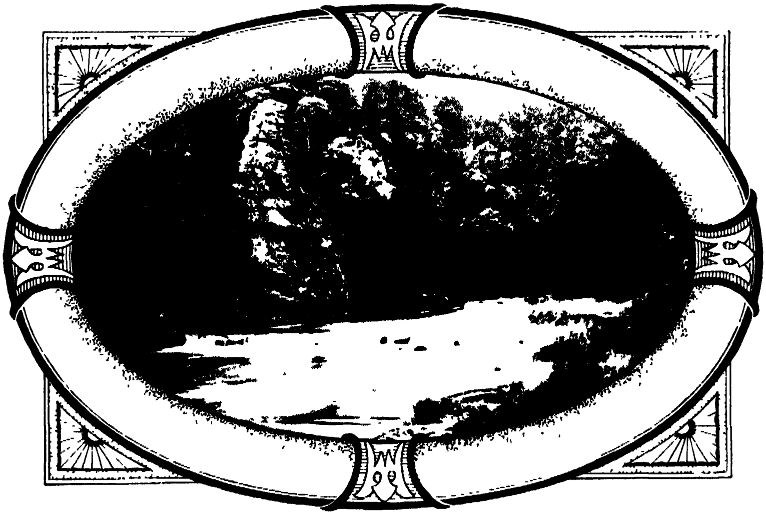
f/11, ½ minute at f/8, 30 seconds flash at f/22—the illuminant being a Westminster "Baby" arc lamp attached to the ordinary house installation. Hence the lengthy exposures. The subsequent operations, i.e., development, etc., were carried out as per Paynetype instructions.

The reader may ask, then why is this method not adopted in newspaper process plants? How would it affect existing conditions? From an editorial standpoint it would raise difficulties.

The pictorial matter is chosen by the art editor, from *prints* submitted by their own staff or by photographic agencies, etc.

The negatives taken by their own staff certainly could be utilised for this direct method, except when combination pictures were desired. But in the case of negatives taken by the agencies, etc., who at the present time supply over 50% of the illustrations published, it would be impossible for them to exist if they were requested to supply the negatives; for this would mean the one sale, *i.e.*, the negative, and good topical negatives yield dozens of sales under present conditions. This would be the chief drawback from an editorial and photographic agency's point of view.

From an engraver's standpoint the chief responsibility is in the photographic operation, though constant working at the process would soon overcome the difficulties which first arise, such as uneven dot formation or defective enamel. The final print should have a good glossy image in enamel. A dull surface to the enamel permits acid to penetrate and is due to faulty working. The etching, etc., is as usual. The depth of the block on preceding page has been tested and passed as quite "satisfactory for stereotyping" and newspaper printing.



T. B. Browne, Ltd. Martin J. Ridley, photo

Dovedale, Derby

PROCESS IN SWITZERLAND.

By E. J. GLUMART.

B. Dellagana & Co. Ltd. J. M. [illegible], photo

The Cotton Bonnet

SWITZERLAND, the playground of Europe, so-called, may claim to rank among the process countries of the world. Time was, and at no far distant date, when the little Republic held a very modest place in the background, but the adoption of the latest appliances and methods, attracting the best class of worker from various parts of Europe, has enabled her to come rapidly to the front.

But though great progress has been made in the process part of the trade, with the printer there is much to be accomplished, and naturally their shortcomings are a great handicap to the more progressive branch. This is very disheartening for the latter, who have made enormous sacrifices in their endeavour to facilitate the work of the printer.

The last three years, however, have seen a change for the better in newspaper production. In Geneva, a town of some 135,000 inhabitants, there are three illustrated daily journals and four block-making establishments. Originals are skilfully retouched and the plates carefully etched, minute attention being paid to middle-tones and depth. Then comes the printing. The effects of too much pressure or ink, or an insufficiency of both, are of frequent occurrence, or one page clean and fairly well printed, another page black, with tones and high-lights stopped up, or grey and smudged. In spite of these drawbacks the process engravers are ever on the look-out to seize upon any new idea that may present itself.

There are many difficulties besides those familiar to all directors of process firms. Almost every article has to be purchased from surrounding countries, or England, and not being on the spot to see for oneself, the choice is not in every case the best Then there is the cost of packing, the journey by rail and sometimes sea and the customs to be paid. The latter itself is an eye opener, the process firms in Switzerland being heavily hit by the tariff wall. Nothing escapes the vigilance of the customs officials who could, in justice, be sometimes a little less exorbitant in their charges

Much of the machinery for process and printing comes from Germany, whose manufacturers score over their competitors by their readiness to adapt themselves to the requirements of their customers Recently a journal in Geneva described how a printing firm sent for quotations for a machine from English, French and German manufacturers. By the time the English estimate arrived, which, by the way, was written in English, the French manufacturers had sent a representative to quote and to endeavour to show how their machine was all that was required, but not, however, before the German firm had forwarded a machine on approval and had it erected and in running order It remained there

Though somewhat of a digression, it may be here related as further evidence of Teutonic pushfulness, that a German traveller called upon a French firm in a neighbouring town, and offered some mustard pots in the shape of a pig The Frenchman offered to take a large number if the German would cap the pig in the shape of the well-known military helmet of the Fatherland. Nothing loth the model was executed, supplied, and the article sold amazingly.

Still, machines and accessories from England are much used, those provided by the enterprising firm so well-known to process men in all parts of the world, being greatly in evidence

The employers are liberal in their allowance of chemicals to the workmen and patient when unforeseen trouble detracts from the daily output. The work-rooms are large, clean and airy, with plenty of space to spare In some cases they are situated at the top of a house some six storeys high. The height in the case of the staff is of little consequence, as each employé is provided with a key to the lift. It is, however, the unfortunate customer who suffers, for to climb six flights of stairs and then to risk the chance of sliding and falling on the beeswaxed and polished floor is no joke. But the man with a carboy of acid or a case of zinc, compelled to carry the load on his back, does not regard the arrangement with favour. The postman is more fortunate. He leaves the letters downstairs and only in the case of a package does he attempt to ascend

As is to be expected from such a building a good view is obtainable of mountains and surrounding country, and one who has worked in London can readily appreciate the splendour

Zinc is more frequently used than copper -in the proportion perhaps of a hundred to one--and the prices for work are just a trifle higher than in England. Wages are slightly lower, the hours of labour being in excess.

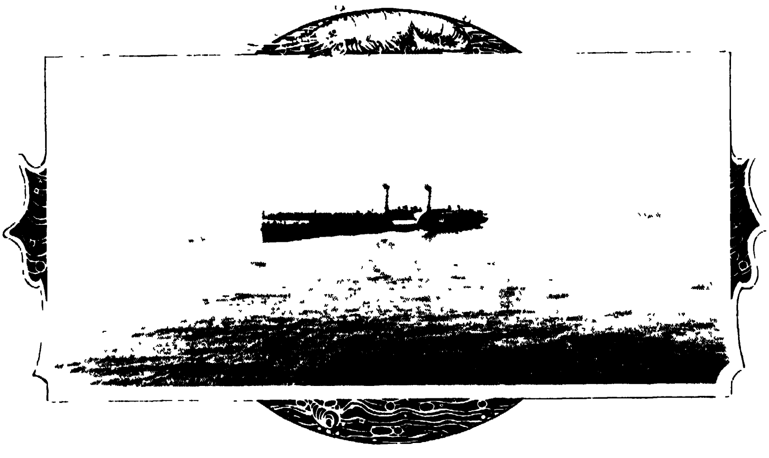
There are many foreigners employed in the process houses, Germans and French preponderating. The compulsory military service draws the men away for just over two months at twenty years of age, those for France now going for three years. Usually the gaps are filled up from the overflowing stream of unemployed from other towns and countries, but one firm has a decided preference for Englishmen, though there is great difficulty in the way of getting good men.

Factory regulations are framed with a view to the well-being of the workmen. The regulations, which are drawn up by each individual firm, have to be first submitted to the men for their approval and signature and then forwarded to the factory officials, who cut out any portion which they think may be too much in favour of the employers. The list is then signed, printed and posted up in a position accessible to the workmen.

Every man on being engaged has to give full particulars of himself: name, age, nationality, etc. These must be forwarded without the least delay, by the employer, to the authorities, who are thus cognisant of all changes going on

The going is not so hard, and though one is working among men from many lands, and of varied tastes and habits, many friends are to be found.

The work is always interesting and there is plenty for all, so in viewing the present state of affairs in the process world, Switzerland has reason to be satisfied.



Arc Engraving Co Jas. E. Tyler, photo

Turning Round

FLAT BED OR ROTARY PRINTING MACHINES.

By J. R. RIDDELL,
Principal St. Bride Foundation Printing School

THE ACME TONE ENGRAVING CO. LTD — J. WEST & SON, photo

BRITISH PLUCK

UNQUESTIONABLY the ever-changing methods of reproduction give rise to serious thought and no little concern to those who are responsible for maintaining the efficiency and reputation of a modern printing office producing a high standard of work. A large expenditure on equipment is found necessary, but owing to the rapid development taking place in the construction and improvement of the printing press, as we know it to-day, one's plant may in a very short time be considered as so much "scrap iron." The advent of the rotary press constructed for producing high-class printing is demonstrating this theory day by day.

Who can deny the fact that the outcome of modern progress is speed rather than quality, therefore the need for the rotary press, which claims to couple speed and quality together? It cannot be denied that this press has "come to stay," and moreover to a certain extent has "made good" the claims put forth by its supporters. One has only to note the recent development of the rotary litho machine, the rotary offset press, the sheet-fed rotary for magazine work, and also the rotary gravure machine, all of which have proved themselves to be more or less successful in their respective fields.

Beyond and above all this it is frequently acknowledged by thos competent to judge that the rotary methods of reproduction do no give the same quality and richness of tone that the older and slowe flat bed machines are capable of producing. The Lithographic Printe invariably affirms that in spite of modern science and equipment, the maker of the rotary have not yet been able to obtain results equal to that whic can be produced from the flat bed machines, whether it be by direct lithography or offset process. Results to hand would appear to suppor this contention, for it is seldom, if ever, one comes across examples o modern lithography that can be compared favourably with those produced a few years back.

Again, it is found that some of the best offset colour printing has been produced on ordinary flat bed litho machines, which have been converted into offset flat beds. Similar expressions of opinion are freely expressed by those able to speak with authority regarding the " relief " and " intaglio " methods of reproduction on rotary machines, showing in a marked degree that there is generally lack of strength, sharpness, and depth of tone, so often a noticeable feature in the older and slower methods of production.

This only bears out what has long been emphasized by experienced workers " that for the higher grade of work increased speed frequently proves to be a ' white elephant,' " and that when the best reproduction is called for it is usually obtained by using the slower methods of the flat bed machine. This, also, possesses additional advantages in so far that it allows the worker greater scope to introduce his skill and individuality into the work, thereby materially increasing the reputation of the firm, as well as enhancing the selling value of the work.

" Scientific management " proves that nothing adds so much to the cost of production as the purchase of plant unsuitable for the class of work produced. That this is a matter affecting the interests of employers no one will deny and it behoves them to look closely into the matter when considering the question of additional plant. Are they prepared to sacrifice quality to speed and can they feed the additional plant satisfactorily from a profit-earning point of view ? It is now recognised that many printing offices are over-equipped, and generally under-organized.

Many printers well able to judge are looking forward with interest to developments in the near future respecting both the rotary and flat bed type of machines, but at this stage it does not require a prophet to realize that the " day " of the rotary press for " quality " is yet to come, nor that the " day " of the flat bed machine has yet passed away.

'TIS SWEET TO LET THE MEMORY STRAY.

J. W. GODWARD.

FORMAN & SONS, NOTTINGHAM THREE-COLOUR IMPRI

THE SPECTRUM AND THE DRY PLATE.

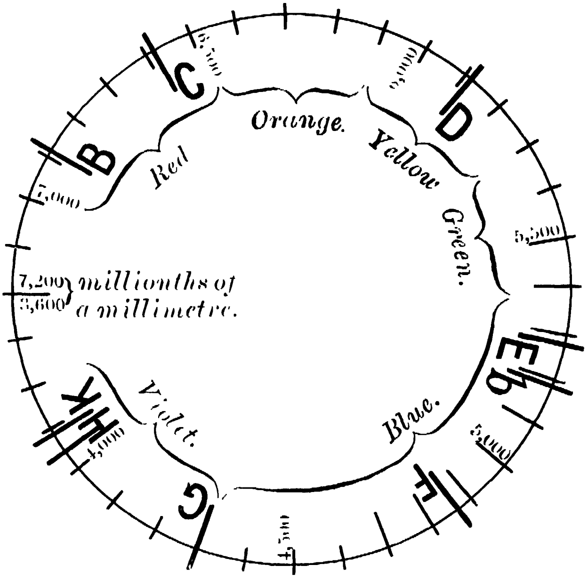
By ALFRED DAWSON.

The Johnston Engraving Co — Margaret S Earnshaw photo

The Chasms, Port St Mary, I O M

THE Spectrum of Light, as also all light of every kind, is one of the wonders of creation, yet so present everywhere that we see no wonder until we dig a little. When we reflect that light would pass eight times round the earth in a single second we begin to be puzzled But if we reflect that this speed of light places the apparent sun a considerable amount ahead of his true place—and if gravitation was subject to the same law as light, we should be attracted from a false point, so much so that each yearly orbit would differ from the previous round But as this does not happen the curious difference becomes apparent that our stock in trade of solar light is a slow thing compared with the mechanical and common world's stock in trade of solar and every other form of gravitation. The speed of light is allowed to be incredible, but the speed of gravitation outstrips it in some unknown and perhaps undiscoverable ratio, of which I have never seen as yet a mention in print.

Now examining the spectrum physically we find that the light wave at the blue end is violet in hue, while the light at the red end loses its redness and begins to look violet also, and the red wave is getting towards twice the length of the violet wave. And I have planned a circular spectrum in which the red light wave is exactly double at the red end, *viz.*, 3,600 millionths of a millimetre for the violet wave and 7,200 millionths for the red extremity, which we can christen the "luminous octave," leaving about one-tenth of the circle dark, but it is not vacant, for it is filled on the one hand with ultra violet "chemical" rays and on the other with "heat" rays, neither of which do we see, though some creatures may see them.



But strangely enough this space is quite filled in nature with chemical colours, dyes and flowers of many shades, easily distinguished by the eye from red through madder and aniline lakes and on into the violet without a break. And not one is represented in the solar or any spectrum. But though this is so it follows that like cures like, for we employ aniline violet to banish the last trace of yellow, and it does it completely, so that the yellow printing negative is produced, but on the other hand if we want to make a violet printing negative it would require a pure yellow filter. This, however, does not suit us, as we most usually want to print a blue and this needs an orange filter; so then, to get a violet, we have to let red play a part in the printing, and this requires a green filter so perfect as to contain no red ray whatever. This is at the moment of writing the hardest colour to get a plate able to grasp (green filter for red printer), and hence we are weak in our command of the series of tints in the blank of our colour circle where nature is so very fertile.

Similarly super-sensitiveness in the violet makes the yellow printing negative a difficult one—and hence so much of the disagreeable "tide mark" of yellow in much trichrome work.

By consulting our octave chart it will be noted that if the filter inclines to red it will kill more of the green light about E and b lines. This would make a negative printing yellow only for real yellow, but I am sure that we print much yellow where the brilliant greenish portion of the spectrum occurs, and this excessive power of light in that part of the spectrum requires unusual force and directness in the violet filter, which must be purple or rosy enough and strong enough.

In the early days the special sensitiveness of any plate was so local that a downright battle had to be fought between the special filters needed and the great inequality of the exposures which followed were great hindrances to the colour branch. They are, however, now brought down to about two to one, or even closer, so that the great result of synchronous exposure is in full evidence at the present moment. The differences by time of exposure are set against the different light values of the three slides with the happy result that all are exposed for an identical time and all develop together, so much so in many cases that they may be started and carried right through in one dish within fifteen minutes of exposure, which in its turn in the sunlight is only a second or two on natural objects with figures or flowers as principal features, and even for dark oil paintings two to five minutes in good daylight.

It is, however, needful to know the characters of the plates employed, and particularly to rid the mind of the idea that panchromatic has the same meaning or character as "ortho," or "iso," or any other chromatic plate. These fine words may have a practically identical meaning to the schoolman, but the plate-maker only knows that these other than panchromatic plates go a little way down the spectrum, but do not burn their fingers in the red, and for them the ruby light is a safe light, but the true panchromatic is even more sensitive in the red than in the blue, and is, indeed, a revelation. Fortunately developers are now so well in hand that one can slip the exposed plate in from the slide in perfect darkness, then cover it with a box and give it the time which experience has shown to be right. There is, however, small risk of over-development or flatness arising in that way, but there is great risk of examining before it is ready—no matter what coloured light or however weak—of fogging the plate.

But here follows a problem to be carefully mastered by the worker. One exposure (the yellow printing negative) is of necessity taken through a purple screen, a colour of such depth that anyone may be excused if he thinks it cannot come on the plate and he is confirmed when he finds the negative is flat and thin; I will only say that on filling the slide with a good old class undoctored ordinary plate, giving plucky negatives and not more than 70 to 80 H. & D. speed, he will obtain good negatives in the purple ray and these are the yellow printers.

Therefore, an ample time allowed to the developing, before opening the cover, is the safe course.

These remarks may be considered somewhat simple and unsophisticated and quite cut away from the long years of work and teachings of the prominent colour masters— and this is the fact. It begins very slowly to appear that the colour problem, partly by reason and partly in spite of the special colour sensitive silver compounds discovered and discovering, is greatly simplified. The entire question is, in fact, simply: What do you want to print? Answer: Kill it and preserve its exact complementary, making sure by the spectroscope that not a ray of the printing colour reaches the plate whose negative is to yield a print of the said colour. This is a purely physical plain direction, but though not yet quite perfect at their work, the fine plates now obtainable under the name "Process Panchromatic" will do that thing.

Native Quarter, Port Said

The Johnston Engraving Co — Charles H Horton, photo

TECHNICAL EDUCATION.

By C. J. KILLEN, Effingham, Ill.

Arc Engraving Co

Freckelton Studio photo.

Dorothy

THERE have been great changes made in Process-work in the last few years. Many new methods have been evolved and great improvements in the mechanical and artistic part of the profession have taken place. Each year shows an advance over the preceding one, yet there is one improvement, and one of the greatest, that is not followed up as close as it should be. That is the improvement of the MAN. Thousands of dollars are spent for a machine that will do work a little better or quicker than could be done without it, but very little is done for the improvement of the BRAINS, on which so much depends. With the advantages that are open to process workers now, much could be accomplished in this line. Still, how few of the men one meets in the profession know as much about his work as he should? We will find 70 to 80 per cent. of them working by "rule of thumb." In spite of this many of them are turning out first-class work. What, then, they say, is the use of their studying and learning more about their work? Simply this. It is the man who has the greatest knowledge regarding his business that can reach the highest place in his profession, and if a man can do fairly good work without extra training he would be able to do much better if he had more knowledge. Again, the man who goes by rule of thumb is all right as long as things go smoothly, but when trouble arises he has to "guess" what the cause is and try this thing and that thing till he accidently overcomes it, and even then he often does not know what was the cause of the trouble.

With the opportunities of the present day, text books, technical schools, etc., it seems surprising that anyone would lack enough interest in their work to study up in their branch at least. As an example of lack of technical knowledge I give the following incident which happened some time ago I was in a photo-engraving establishment and was watching an operator manipulate a negative. He said he had been in the business fifteen years. During our talk I asked him what he used a certain chemical for and what action it had. He said, "Oh, I always use it." On closer questioning he said he didn't know "what" it did but he had been shown how to use it and had always done so. I have had the same experience over and over, and it goes to show how easy it is to get into a rut and stay there. It is this inclination to plug along in the same old way, rather than to bother to keep up with the newer and more modern methods, that keeps so many of the men from climbing higher up the ladder of success.

This deficiency can never be overcome till there is some systematic effort made to improve the workmen or some incentive to greater knowledge among the men themselves. With a profession that needs the application of brains as much as photo-engraving or process work does, especially in some branches, it seems odd that so many learn only enough to do a passable amount of work in a passable manner. Of course often one cannot blame the beginner, as the one teaching them is not always sufficiently educated along their line of work to be a proficient instructor So many process workers will smile and shake their heads when anyone mentions "theory" and say "that's all right for some things, but not in our work, what we want is practical men." Such assertions only display lack of knowledge, for theory is the gateway to knowledge in any profession It is the fundamental basis for correct understanding of any profession also. If theory was not a most valuable asset of education all the colleges and schools would not teach it. What would a doctor, lawyer, engineer, electrician, or any professional man be with theory eliminated? Why then should process work be different from the others? It isn't, but owing to the lack of educational facilities in the past, and the prejudice against technical education among the majority of the workmen, things reached a stage where only "practical" men were produced, and the greater part of the process workers to-day are no farther advanced than they were ten years ago.

At present there is a trend toward technical education all along the line During the last few years men are waking up to the fact that the man who knows the theory of his work makes a better and more *practical* man than the so-called purely practical man Every man ought to know exactly "why" he does a certain thing and "what" he does it for and "what" happens when he does it. What would we think of a doctor who guessed what was the matter with us and then gave us some medicine because he saw another doctor give it to some one else ?

If we look through the process establishments over the country we will find here and there a man who is young in the business, but who is working with and above men much older in experience Why is this ? Because he has studied up on his work and taken advantage of technical education. He knows why a certain operation is carried out and what the effect will be. If trouble occurs he knows where to look for it and doesn't have to guess at it. He knows what the silver does to the collodion He understands the relation of the screen separation to the camera extension and stops, why the shadow dots are round, although made through a square opening in the screen; why we expose through a red filter to make the blue printing plate in trichromatic work, why we put bichromate in copper enamel, why we do hundreds of things It is this knowledge that shows the difference between a man of high talents and one of mediocre attainments.

Let each and every one of us then strive to reach as high as possible in our chosen profession We belong to one of the most important and far-reaching professions in the world and one that we should be proud of Years ago " a boy off the street " was good enough to bring in and start to learn process-work. Now times have changed and young men of brains and college educations and business experiences are entering the work and raising the standard, both as to knowledge and *personnel.* These are the ones we see passing the older, but " stuck in a rut" men. Let us watch then, each of us, and keep up with the times ourselves, lest someone passes us.

Hill & Co K F Br[illegible] photo

In Wintertime

OBTAINING SOLID BLACKS IN HALF-TONES.

By JOHN WIDDOP.

B. Dellagana & Co., Ltd. J. M. [illegible] photo

"Three Score and Ten"

In making a screen negative of certain objects, such as a bicycle with fine spokes, which should appear in the print perfectly black and sharp, with other parts of the machine perfectly black, and the rest in nice tone work, it is too often the case that the spokes come out with a saw-like edge, caused by the screens, and the blacks are not as solid as they might be. There is one way which, if carefully done, renders the spokes perfectly sharp and the blacks perfectly black.

First put register lines on copy, then take negative on a dry plate that will give clear glass after fixing. Expose only long enough to get the blacks, develop, fix and dry, then trace over all the spokes and the parts that are wanted black, in a waterproof ink, very carefully. This does not take long after a little practice. (Messrs. Penrose supply a waterproof ink). When the ink is dry bleach all the image away with ferricyanide and hypo till all the plate is clear glass except where the drawing ink is. Wet plates could be used for this and would be quicker than dry. When the plate is dry put it back in the camera and set it to the exact position it was before by the fine register lines, then put another plate behind it and make your exposure. Of course the slide will require a slight adjustment to allow for this arrangement. If properly carried out the result will be perfectly clear glass in the negative where blacks are required in the print. The register lines should be very fine on the copy to allow for fine adjustment of the negative afterwards in the camera, and they need to be ruled over very carefully with a waterproof ink before bleaching.

ONE-EXPOSURE CAMERAS.

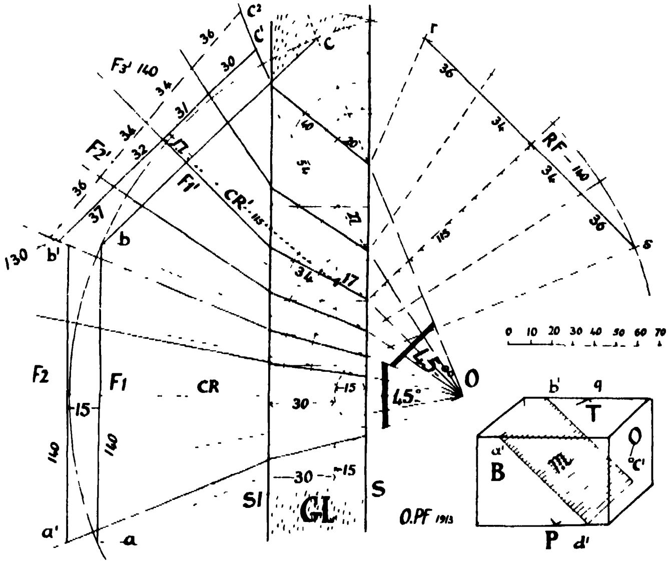
By OTTO PFENNINGER.

ARC ENGRAVING CO — FRECKELTON STUDIO photo

PICKING WILD FLOWERS

DUCOS DU HAURON, in his French patents 105,881 (15th Dec., 1874), and 119,457 (24th July, 1877), which are embodied in the English patent 2973, of 22nd July, 1876, claims the priority for giving directions how to form a one-exposure camera in which reflectors are employed to divide the lightrays. The respective patent specifications are still sold at one franc in France and eightpence in England. The one-exposure camera inventions of all other inventors are based on Ducos du Hauron's first invention and a Court of Law would uphold the latter's claims against all others, with the possible exceptions of Bennetto's patent 28,920, Dec., 1897, and possibly also the patents which introduce compensation for refraction defects.

The first inventor described the camera as geometrically correct for the subtractive method, and the second inventor claimed the same camera in 1892 for the subtractive as well as for the additive method. All these cameras, if not compensated, are good and serviceable only when used as viewing instruments, and only if the original negatives were taken with an instrument having the same defective construction. I am predisposed to think that it was impossible with the above instruments to take three clean and clear negatives at one exposure, because good colour sensitizers were not known at that time, nor do the inventors seem to have taken account of the variation of light actinity of the reflected and transmitted lightrays in their instruments and recourse was no doubt had to three separate exposures. When the positives obtained from such three exposure negatives were inserted in the above instruments, then it was found that something was wrong, but a clear explanation was in those early times not forthcoming, and it is my special purpose to demonstrate in the following lines, that it is possible for glass, optically flat and parallel, to introduce deformity into the picture, which is obtained by projecting a lightcone through such glass. To illustrate this paradox I made a drawing in which the glass is taken much thicker than it would be necessary for use, in order to exaggerate the defect In the drawing the numbers represent the distances measured by the scales



If *a'*, *b'*, *c'*, *d'*, is a glass inclined at an angle of 45 degrees and O is the optical centre, that is the lens in the box-like structure, the projected lightrays will, by the glass *m*, which obviously acts as a mirror, be thrown upwards toward T, the same lightrays will also be parted, so that part of the rays coming from O will also pass through that interposed glass and act at the back at B. This is the simplest form of a one-exposure camera and is the basis of Bennetto's camera. The older forms of one-exposure cameras may be said to be made with two such one-reflector boxes joined together, therefore if I explain the optical light action of the one-mirror system all conclusions for a two-mirror system can easily be followed up, the defect, in that case, being duplicated, not compensated, much less diminished

In the larger drawing the two circle segments show the three focal distances, F1, F1′, and R F at the same radius, from the optical centre O, and of the same length of 140, the spacing of the four lightrays in each section *a-b* or *b-c* or *r-s* is 36, 34, 34, 36 If now we interpose a glass GL, the lightrays in the lower dispersion marked 45° will correspond to the lightrays passing in the direction of the shading as shown in the box picture, and the lightrays in the upper dispersion marked 45° will correspond to the lightrays passing across the same shading in the same box picture.

Through this interposition of glass the focus has been displaced from F1 to F2 and from F1′ to F2′ and the spacing of the four lightrays in the upper dispersion is now 37, 32, 31, 30, or 130 in all against the original 140 and the 140 in the lower dispersion, this difference of 10 is one-fifth of the glass thickness, and is also the amount the picture is pressed together from top to bottom when refracted, the back picture is therefore deformed or forshortened. A deformed picture with two sides at 140 and two sides at 130 can never be of the same size as a reflected picture not deformed in which all sides are 140.

It is possible, partly or wholly, to compensate for this defect by using wedge plate, or by using plano-cylindro-convex or plano-cylindro-concave plate; such compensating device is, however, if theoretically correct, not applicable for every-day use, and I think could only be used with fixed-focus cameras, restricting the use of such cameras unduly.

Thin glass covered with gelatine would give way, more or less, to the tension of the gelatine, when dry, forming a saucer-like plate, and use could be made of such curved surfaces to disperse or concentrate the reflected lightrays. The tension exercised by a gelatine surface is noticeable in a 12 by 12 plate having a thickness of $\frac{1}{8}$ inch.

In all innocence of scientific conception an inventor has patented a device of pressing a flat mirror, slightly cylindrical, to correct the refraction defect and that proud inventor insists that all others dabbling in compensation are picking his brains. There's no doubt some aberration somewhere.

A better way of compensation is to interpose in the reflected lightcone a glass in the same direction, with the same angle and having the same thickness as the reflector, but allowing free reflection from the mirror *m*, or to interpose a similar glass at opposed angle in the direct lightcone between mirror and back focussing plane. This latter is the better and more correct position, and the beauty of it is you can use thick glass, half-inch thick if you like; therefore nothing very delicate about it.

Yet another way of compensation, a *quasi* self-compensation, is obtained when the reflector *m* is placed in such a way into the reflector-box that the refraction is equal on both sides of a', which can be done. For that purpose the mirror would be placed, a', g', c'. p', and the action of the refraction is shown in F2′ which focus can be adjusted like F3′ when all rays are equal to the reflection, or the focus of reflection at RF could also be adjusted to the refracted focus at F2′, In an instrument constructed on these lines the focus-plane T would be placed sidewards on the box edge at 45 degrees to the two box sides.

There being no grained screen plate used with a one-exposure camera the resulting negatives will obviously be grainless like any other ordinary negative and such negative-colour-records are amenable to be enlarged in the usual way, an indisputable advantage over all colour plates, which have a demi-additive basis and separate colour points and no homogeneous colour graduations

THE LUCAS ENGRAVING CO., LTD. J. C. BURROW, F.R.P.S., photo.

GURNARDS HEAD, CORNWALL.

SHOWING HALF-TONE PHENOMENA WITH THE LANTERN.

By N. S. AMSTUTZ,
Research Engineer, Valparaiso, Ind., U.S.A.

Hill & Co. K. F. Bishop, photo

The Boxers

THE change from the continuous tones of an ordinary photograph to discontinuous ones, such as are found in half-tones, is difficult for the average person to understand. In fact there are many persons who, though proprietors of process establishments, do not understand how this change is effected. There is a vague idea that a ruled screen is placed in front of the camera and in one way or the other half-tone dots are formed.

It is quite possible to simulate the screen action by means of a projection lantern, so that many persons (if not too far away) can see changes from continuous tones to apparent isolated dot formations taking place, while the features of the image are retained.

The demonstration is not an exact counterpart, in all technical details of the entire metamorphosis that ensues when an ordinary half-tone negative is being made, but it is sufficiently near to serve as an interesting phenomenon.

A coarse screen must be used, about sixty-five lines per inch, and it must be placed in a peculiar relation to the subject an ordinary lantern slide -which has rather large compositional details Both amateurs and professionals will be pleased with the surprising manifestation, for it shows some interesting transitions in dot formations and groupings as the lantern lens is racked to different positions In this short article no attempt can be made to describe the mathematical relations, other than to give the data as this existed in a demonstration of which this is a memorandum.

A tungsten 100 watt lamp was used, with the filament strands standing vertical and its centre 6¼ inches from the image plane of the lantern slide. Between this image and the lens, in contact with the slide, a 65-line Levy screen, having a ratio of 1·1, was placed. The distance from the image plane to the centre of the screen-line plane was approximately $\frac{3}{16}$ inch. From the screen plane to the lens centre was 7 inches and 46 inches beyond the lens the enlarged image was formed. A 65-line screen represents a pitch of 0·0154 inch; this, as projected, became 0·0625 inch, showing an enlargement of approximately four diameters. The screen used was 0·2185 inch thick, made up of two plates, the thinner being 0·0745 and the heavier 0·144 inch thick. In the demonstration the thicker side was placed next the lantern slide which was 0·098 inch thick. One-half of this (0·049) added to 0·144 inch gives the distance the screen was away from the image—0·189 inch, practically $\frac{3}{16}$ inch (0·1875).

An interesting peculiarity of the phenomenon lies in the change of screen "texture" produced on the projected image through a slight change in position of the lens. As the lens was moved toward the lantern slide to approach a focus, a black dot was seen in the high-lights of about 0·024 inch across, apparently square (the screen opening itself is 0·0077 inch) and the image was just coming into focus. A movement of $\frac{1}{16}$ inch nearer the slide brought a sharper image and changed the black dots to white ones with grey lines between them. Moving the lens $\frac{1}{32}$ inch nearer produced the sharpest focus of the image and formed a third grey line running vertically, the others being disposed at 45 degrees to the horizontal and 90 degrees to each other, as in the screen, but the white dots and the grey lines were not so distinct as in the previous setting.

There does not seem to be any gradation in the size of dots from the shadows to the high-lights. The black dots roughly simulated a half-tone print, while the white dots approximated the negative values of the screen phenomena registered on the sensitive plate. The slide and screen were clamped against the lantern directly in front of a pair of 5½ inch condensers. The lens used was one made for projection work, being a separated doublet of 3¾ inch centres, having a 2-inch clear opening and an equivalent focal length of 6 1/2 inches.

If the half-tone screen was removed when the projected image was sharpest the focus was entirely destroyed, requiring a lens movement towards the lantern slide of $\frac{1}{32}$ inch to restore it.

This phenomenon seems to have within itself a possibility of use in half-tone researches that may suggest to others modifications lending themselves to greater exactitude. At any event these demonstrations, whatever their technical value, are a great help in showing the nuclear dot relation, as well as the screen effect of half-tones, to many persons at the same time.

ON FADED PHOTOGRAPHS.

By S. K. LAWTON, Jaffna, Ceylon

The Lucas Engraving Co., Ltd. F. P. Wade, photo

An Old Oak, Bradgate Park

I HAVE before me a photograph of a Catholic Father who died twenty-five years ago, the founder of the great Roman Catholic College in Jaffna, whose present rector, through over-confidence in my abilities, sent it to me to make a half-tone block from, for the College Magazine. It is a silver albumen carte, with faint indications of the deepest shades, and entire absence of all the other parts of the original image. The print, when first prepared, consisted of silver in combination with halogen chlorine, albumen and the super-imposed gold. Some chemical action, induced by insufficient toning, hasty fixing and short washing, made the picture to vanish slowly. Whatever the effect on the other components, the metallic silver in some form or other is still imbedded in the paper support, for being stable it cannot evaporate or exhale out. How to reconvert this silver into a visible compound was the problem that confronted me. Some old faded silver prints were cut into strips and bleached in bichloride of mercury and washed. A few of these, after exposure to light, were subjected to different developers and others blackened in cyanide of silver. The result was a change in the tone with no revelation of additional details. There are in existence numerous family portraits, the possessors of which will pay handsome prices if only they can be restored to their original depth and brightness and enlarged. This is not impossible of attainment, for the original metallic silver, being fully retained in the paper can be reconverted into a sensitive compound and developed or some way devised, such as by forming electro deposits of silver or gold

When bromide papers were put on the market, about twenty-three years ago, I made trials of them and possess several early specimens. Some are discoloured in the whites through hasty fixing, but they retain the original depth and detail. An enlargement of the famous Sage Vivekananda, placed in the local Hindu College hall about sixteen years ago, is absolutely as bright and clear now as on the day it was finished. An enlargement made about six years ago is now visibly faded, the retouching marks standing out too prominently from the developed image. The differences in the paper and treatment of these were —the old paper was of a rough surface and the silver bromide emulsion apparently contained a very small quantity of gelatine. It was developed in a mixture of oxalate of potash and protosulphate of iron, and carefully fixed and washed The recent enlargement was on a paper which contained more gelatine, intended perhaps to retain the image on the surface and thus give more brilliancy, and the development was by metol-hydroquinone. The fading apparently was due to the retention of moisture in our damp atmosphere by the larger quantity of gelatine in recent papers As regards the different developers, the iron may have produced a more permanent image, but this does not seem very probable. This matter deserves the careful attention of manufacturers, for when bromides are supplied to the public with the understanding that they are permanent, they must be absolutely so.

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Since forwarding the above by the last mail, complaint comes from a public institution that the framed enlargement shows whitening of the image graduating from the top. The old enlargements of many years' standing were not pasted on card-board, but simply inserted in cut-out mounts. The more recent pictures were well coated with starch paste and fixed to cards. The probable cause of the fading should be that the starch paste had attracted moisture from the air and set up decomposition of the bromide of silver image. Some bromides have shown the strokes of the mounting brush, where the paste was thickest The remedy is not to mount enlargements with starch paste, but use india-rubber solution or resort to some of the dry mounting systems, or they can be inserted without mounting in cut-out mounts.

Offset Lithograph in Four Colours, by Turner & Dunnett, Liverpool.

From a Double Royal Poster, by Kind Permission of the Cunard Line.

KNOW THE COST.

By GEO. H BENEDICT, Chicago.

S. A. CAHILL & SON F. E. HINDLEY, photo

AN ULLSWATER LANE.

THE prevailing characteristic of photo-engravers is ignorance of the cost of the individual job or plate, and a selling price that has absolutely no relation to individual or average cost of plates of varying sizes or qualities

To sell an article at a certain profit without knowing the exact cost is an impossibility.

The object of this article is to convince the photo-engraver who does not know the cost of *any* plate he has ever made, that it will be surprisingly easy to know the cost of *every* plate he will ever make.

The immediate result of a cost system in every photo-engraving plant will prove to the owner of that plant that he is positively losing money on more than one-half the plates he makes

The crying need of photo-engraving is a standard of value based on cost That there will ever be a universal standard will depend on how general cost knowledge may become Evidently the long road to improvement must be along the line of education and since a knowledge of cost is the prime necessity, the thing most needed by the photo engraving craft is a cost system so easy to operate that it will be generally adopted In line with this thought I offer the following as a suggestion for a "ready-for use" cost system.

In considering a cost system the first fundamental fact to get firmly in mind is this In every manufacturing business the chargeable labour and material must carry the burden of every other expense and make the profit.

The second necessary fact is--either find the proportion of the labour cost to the total expense- or --take the experience of other photo-engravers as a basis for your calculations. Assuming that you will do the latter, accept this your manufacturing pay-roll is one-half of your total expense, and when the non-chargeable and idle time is considered, the chargeable labour must be charged at more than double the cost

The following table based on double the wage, with an allowance of 15 per cent. for idle time, is correct for any amount from $10 to $50 per week of 48 hours, and for each five minutes of time up to five hours.

Wage	MINUTES											HOURS					Wage
	5	10	15	20	25	30	35	40	45	50	55	1	2	3	4	5	
10	5	9	13	17	21	25	30	34	38	42	46	50	100	150	200	250	10
12	5	10	15	20	25	30	35	40	45	50	55	60	120	180	240	300	12
14	6	12	18	24	30	35	41	47	53	58	65	70	140	210	280	350	14
16	7	14	20	27	34	40	47	54	60	67	74	80	160	240	320	400	16
18	8	15	23	30	38	45	53	60	68	75	83	90	180	270	360	450	18
20	9	17	25	34	42	50	59	67	75	84	92	100	200	300	400	500	20
21	9	18	27	35	44	53	62	71	80	88	97	105	210	315	420	525	21
22	10	19	28	37	46	55	65	74	83	92	101	110	220	330	440	550	22
23	10	20	29	39	49	58	68	78	87	97	106	115	230	345	460	575	23
24	10	20	30	40	50	60	70	80	90	100	110	120	240	360	480	600	24
25	11	21	32	42	53	63	74	84	95	105	114	125	250	375	500	625	25
26	11	22	33	44	55	65	76	87	98	109	120	130	260	390	520	650	26
27	12	23	34	45	57	68	80	91	102	113	124	135	270	405	540	675	27
28	12	24	35	47	59	70	82	94	105	117	129	140	280	420	560	700	28
29	13	25	37	49	61	73	86	98	110	122	133	145	290	435	580	725	29
30	13	25	38	50	63	75	88	100	113	125	138	150	300	450	600	750	30
32	14	27	40	54	67	80	94	107	120	134	147	160	320	480	640	800	32
34	15	29	43	57	72	85	100	114	128	142	156	170	340	510	680	850	34
36	15	30	45	60	75	90	105	120	135	150	165	180	360	540	720	900	36
38	16	32	48	64	80	95	111	127	143	159	175	190	380	570	760	950	38
40	17	34	50	67	84	100	117	134	150	167	184	200	400	600	800	10 00	40
45	19	38	57	75	94	113	132	151	166	188	207	225	450	675	900	11 50	45
50	21	42	63	84	105	125	146	167	188	209	229	250	500	750	10.00	12 50	50
Wage	5	10	15	20	25	30	35	40	45	50	55	1	2	3	4	5	Wage
	MINUTES											HOURS					

The third essential fact to satisfy yourself about is the cost of material, and here again you can begin by taking the experience of others Then accept this— The cost of material for copper half-tones is three cents per square inch, and for zinc line plates two cents per square inch.

As you buy copper and zinc by the pound or sheet and wood by the square foot you will do some quick figuring and conclude these figures are entirely too high, but do you know that you do not sell more than two-thirds of the copper, zinc and wood you buy? Also do you know that all the chemicals, paper, ink, etc., that you use in a year cost more than the metal you use? An investigation will verify this statement and you will conclude these figures are not unreasonable.

Having accepted the hour cost of the chargeable labour and the square inch cost of material you are ready to install this ready-made cost system. You will need a blank to go with each job so that every operation will be accounted for.

COST RECORD

ORDER NO ______ ______ SUBJECT ____

COM'L PHOTO	Hrs	Mins	$	¢	ENGRAVING DEPT	Hr	Mins	$	¢	SUMMARY	$	¢
Negatives					Halftone Negative					Commercial Photo		
Prints					Line Negative					Art Department		
ART DEPARTMENT					Stripper					Engraving Department		
Retouching					Printer					Sq In Copper @ ¢		
Sketch					Etcher					Sq In Zinc @ ¢		
Wash Drawing					Finisher					Electro		
Line Drawing					Router					Expense of Cartage		
Painting					Blocker					Other Charges		
Tint Laying					Proofer							
TOTAL					TOTAL					TOTAL		

Send a cost ticket similar to the above along with each job and *insist* that each man must put down his time as accurately as possible. The chargeable labour is every labour item on the blank. Where two or more objects are photographed, stripped and printed or flat etched at one operation, the time may be divided proportional to size.

No time charge for less than five minutes should be made. It will take many of these little excess charges to make up for the non-chargeable labour and the idle time.

If the men will put down their time an errand boy can figure the cost.

Understand—this is not an argument in favour of this arbitrary system as the last word on cost finding. The object is merely to create the cost habit and a desire for a thoroughly scientific system that will show the exact expense of each part of the work and point out all the leaks in your business.

If you will put this simple system in operation and continue it for one month it will disclose the following facts:

A square inch rate cannot possibly have any relation to the cost of half-tones or zinc etchings.

The cost of minimum plates is about three times greater per square inch than for plates of over 70 square inches.

Plates of equal size will vary from 50 to 100 per cent in cost.

The high cost of zinc-etchings is frequently greater than the low cost of square half-tones.

It will prove to you that more than half the plates you make are minimums that are sold at a loss.

Still more important, it will more than pay for itself in the charges for extra work that you ordinarily overlook.

At the end of the month you can check up and find whether the system gives the cost too high or too low. In a busy month it will be too high—in a slack month too low, and the average for several months should be had before the hour cost should be revised.

In conclusion remember this—the motive of all business is *profit.* The demand in all lines of business is for reliable scientific methods, efficiency in management and knowledge of *cost.* You may have the best methods and able management—but—if you do not know and will not learn the cost you are only a photo-engraver and far short of being a good business man.

The prevailing ignorance of the cost of the photo-engraver's product warrants the publication of the following

(With apologies to Kipling)

A FOOL there was and he made his prayer
  (Even as you and I)
 To the Supplyman and the Customaer
(We call them the men who do not care),
But the fool calls them his friends for fair
  (Even as you and I)
Oh, the years we waste and the tears we waste,
And the work of our head and hand
Belong to the people who do not care
(And now we know they couldn't know)
What WE couldn't understand
A fool there was and his goods he spent—
  (Even as you and I)
Hope and faith and a sure intent
(And it wasn't the least what the customer meant),
But a fool must follow his natural bent
  (Even as you and I)
Oh the toil we lost not knowing the COST—
And the excellent things we planned
Belong to the men who do not care
(And now we know they couldn't know),
The thing WE couldn't understand
The fool was stripped to his foolish hide
  (Even as you and I)
Which the friends might have seen
    when they threw him aside
(But it isn't on record they cared a d)
For a fool like him lived after he died—
  (Even as you and I)
And it isn't the shame—and it isn't the blame
That stings like a white-hot brand
It's coming to know what we didn't know
(Seeing at last the COST of the goods),
We are beginning to understand.

COLOUR REFLECTION.

By S. G. YERBURY.

The Half Tone Engraving Co., Ltd.

R. Braid, photo

A Highland Courtship

THE complete representation of nature on paper is the aim of natural colour photography. The same inter-play of light and shade and colour, even the suggestion of the solidity of the third dimension, as seen on the focussing screen, that—nothing less—is "It."

The failure to make any material progress lately in the search for a means toward this end should induce us to examine more closely the comparative success of natural colour by transmitted light. For it may be doubted whether the real beauty of some of the autochromes shown this year is due solely to the fact that they *are* transmitted light. There is an essential difference in the mechanism of an autochrome and a colour print. In the autochrome the colours are evenly mixed, in the other, the colours are completely separated and superimposed. In nature, colour reflection is carried to a point of sub-division baffling all imitation, but the autochrome follows the same plan and is therefore an imitation of nature, rough and coarse certainly—but real.

The super-imposition of three complete images on paper fails, because, though much finer, it is only an imitation of this imitation.

Supposing we could take a piece of paper of the highest reflecting power and suspend over it in the form of a fine dust, the three primary colours, and, by some kindly necromancer's aid, each atom sought its proper place on the paper as the three colour negatives directed, this would be a fair imitation of nature and would give us natural representation by reflection at second-hand.

The super-imposition method must be wrong, because it gives a *different* reflective power of the paper through each image; images which have been abstracted from Nature at the *same* reflective power.

The process suggested is likely to remain some time in the field of pure imagination, though some quiet worker,

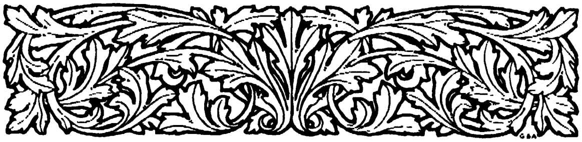
> "Miser of syllable and sound, but in all else,
> Lavish as Midas of his coinage,"

may be about to spring a surprise on us.

Meanwhile, the improvements in machine intaglio processes, where there is no visible grain or dot, suggests that it might be possible by some such means to blend the images together. There is also a variety of mediums in which bichromate or other sensitizers will fix an image, and by powdered gum plates it may be possible to build up a complete colour image little by little, or even by the additive method from an even mosaic of the three colours by damp plates to abstract the colours till a complete image is left.

After much experience of super-imposition by various processes I am convinced it is along this other line we will advance. Our colour prints are pretty pictures—nothing more—and the faint praise they are damned with, is thoroughly deserved. Few realize how infinitely superior and how really beautiful our prints will be, when our practical methods have caught up, even to the amount of theory we at present know.

We can afford to smile at those limited minds, who doubt if there is any money in it, or worse still, want to know, "how much a thousand they will run at"; the producers of such things will rank as craftsmen, second only to the creative artist. Apart from the commercial aspect, the craft have a tradition to maintain. We are officers of the guard of Eye-gate, the finest gate of all the five; because we have done so well more is expected of us. Inside the city are the lives of men and we must not fail, but sooner or later, pass into its mystic streets this real addition to the Joy of Life.



GARRETT & ATKINSON

HIGH SPEED ROTARY INTAGLIO PRINTING.

By T. THORNE BAKER, F.C.S., A.M.I.E.E.

THERE is to-day a very wide field for rapid printing of all kinds, and particularly for the printing at high speed of photo mechanical reproductions. Illustrated newspapers, in which photographs are reproduced, are turned out at a rate of sometimes as high as 24,000 copies per hour, or nearly seven copies per second, and with all the progress in photo-mechanical technique which has taken place during the last few years the quality of the prints as they finally appear leaves much to be desired, remarkable even as it is.

A great deal of experimental work has been going on recently in rotary photogravure printing at a high speed, and reproductions of photographs with an intaglio screen can be turned out with certainty at the rate of 12,000 yards per hour, the results being then very far ahead of anything so far obtained under similar conditions by the ordinary half-tone methods.

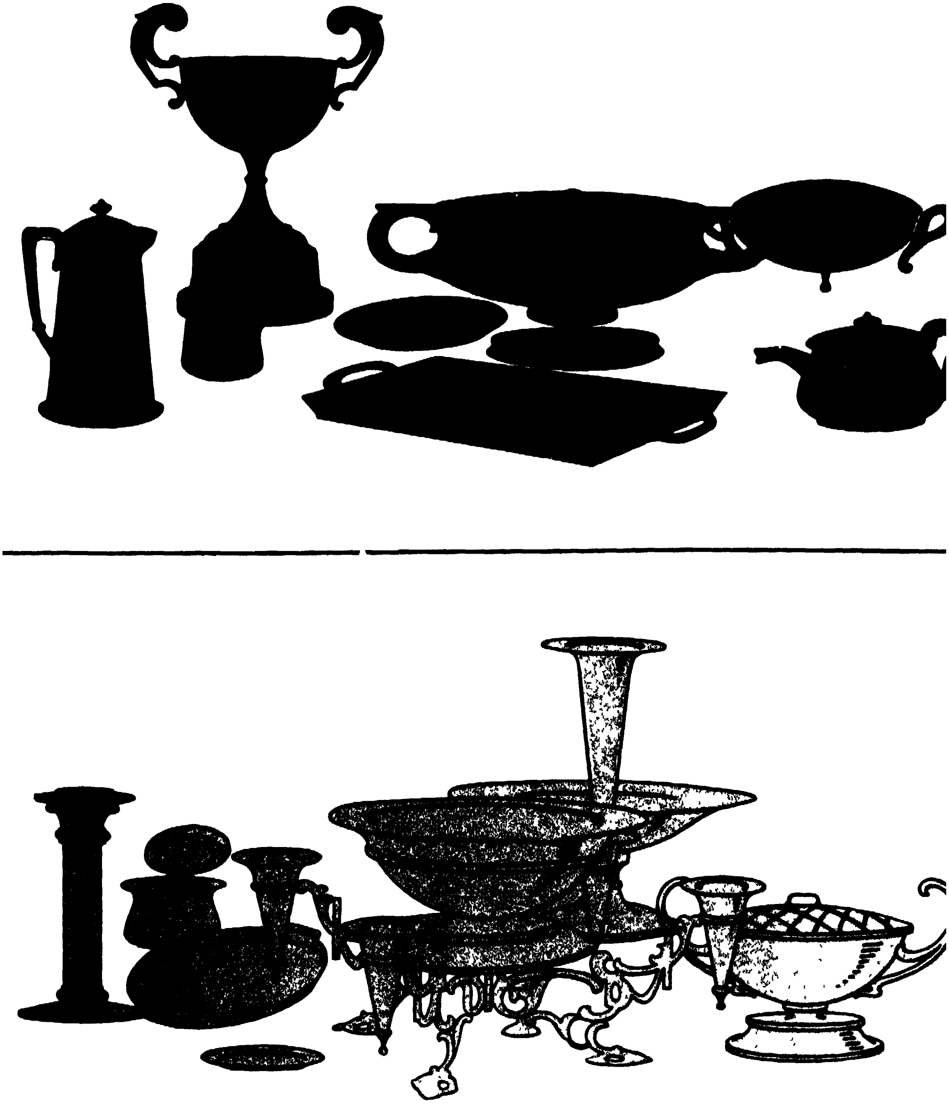
Rotary photogravure is nothing new; it has been worked commercially for many years, but rotary photogravure at such a speed as that above indicated, on the cheapest of common printing papers, is a remarkable advance, and may be said to have commenced in earnest on commercial lines in Germany last year. The most interesting feature of the modern process, first installed by the *Hamburger Fremdenblatt* and the *Frankfurten Zeitung*, is that the whole difference between it and ordinary intaglio printing consists in details of construction. It is not a new invention; it is a number of detail inventions applied to an existing process. The writer has had the opportunity during the last two years to watch its progress in Germany and latterly in this country, and has seen newspaper machines run at the rate of 12,000 revolutions per hour. Several firms are now turning their attention to the process, and all that is required to render a system perfect for English newspapers is a means or process enabling one to rapidly change the etched photographs for different editions of any one day's paper.

A conspicuous feature of the modern illustrated newspaper is its insertion of late pictures just as an ordinary newspaper publishes stop press news. Now if there are twenty small pictures on a double or four-fold page of the paper, which is impressed at one revolution of the printing cylinder, the latter is engraved with those twenty etchings occupying its total surface Suppose then that an important picture arrives at the last minute and is to be substituted for one of the twenty. At the present time the whole cylinder would have to be ground down to renew the entire surface, and the entire printing and etching carried out anew. This is a comparatively small matter where one block is made, then a matrix, and fresh stereotypes run off for each rotary machine in use. But in intaglio printing each cylinder must be engraved separately for each machine— there is no stereotyping—and an immense amount of labour would be involved This is the one primary obstacle to its adoption for newspaper work, but curiously enough it is a problem to which the various inventors have devoted but little attention so far

Picking out the best of all the details so far evolved we find the very high speed process roughly as follows The machine comprises a copper sleeve attached to a drum, on which the engravings are etched. Above this drum is a steel roller faced with a thick layer of rubber, and above this again is a heavy roller which presses the rubber roller tightly against the copper cylinder The cylinder revolves with its lower portion dipping into a trough of ink usually aniline dye dissolved in a solution consisting largely of xylol and therefore extremely evaporative The paper passes between the copper cylinder and the rubber roller, the latter forcing it against the ink, which is taken up by the etching.

The superfluous ink is removed before impression by means of a knife or "doctor," consisting of a flexible steel strip moved laterally slowly, backwards and forwards, at the side of the machine so as to keep its scraping surface dead true , it is continuously reground, and in one system is kept true by having a curved face and a to-and-fro motion imparted to it on the arc of a circle, so as to keep this face true to the cylinder The means of obtaining the right pressure between the etched cylinder and the rubber roller are of great importance, and have now been worked out to a nicety. The printed paper passes over heating surfaces or steam-heated drums to prevent set off and may then be passed into a second part of the machine and printed on the opposite side.

These new systems, giving results at high speed on inferior paper equal to photogravures of quite good quality, are destined to play an important rôle in the photo-mechanical work of the future.



CATALOGUE ILLUSTRATIONS OF METAL WARE

Metallic Inks by Shackell, Edwards & Co., Ltd

METALLIC PRINTING.

By W. ILSTON COX.

THE LUCAS ENGRAVING CO., LTD. — W. T. GREEN, photo.

A HAPPY URCHIN

A CONSIDERABLE impetus has been given to the printing of bronze inks, and gold ink in particular, by the Home Office restrictions on bronzing, which, of course, includes the process of dusting metallic powders on to paper.

This change in business has brought with it many problems, both for printer and inkmaker, and while some of these have been successfully solved there are others which still require solution.

The bronze which is used in making gold ink is mainly composed of copper with an admixture of zinc, which metals are blended as an alloy, beaten into flakes and ultimately reduced to a fine powder.

It will be quite apparent to any prospective printer of gold ink that the metal dust which takes the place of the colour in an ordinary printing ink will be several times heavier than any lake pigment which might be incorporated in a normal printing medium.

Herein lies one of the chief difficulties. If the vehicle is made sufficiently stout to maintain the metal in suspension it will be too stiff to print properly, but if on the other hand the good printing properties of the medium are made the first consideration, then the metal will tend to settle in the duct.

The latter, however, is the lesser of the two evils and it therefore becomes necessary for the operator to frequently stir the ink, so that the correct proportions of gold and medium may not vary as it is distributed on to the forme

Another difficulty which is not easily disposed of is due to the fact that there is nothing in the nature of a soluble dye in the composition of a gold bronze This being so it will be seen that a medium which may sink into the coating of the paper will not carry with it any colour, or in other words the bronze will always be on the surface, thus necessitating the use of a vehicle which will hold it there and, when dry, preclude the possibility of any appreciable quantity being rubbed off.

In common with some other makers, Messrs. Shackell, Edwards and Co , Ltd , have of late considerably improved the working properties of bronze inks, and as at the same time printers have become more accustomed to printing with them, fewer remarks are heard on the difficulties of working.

The inset facing this article has been designed to show that bronze inks may be used for catalogue work in the illustration of metal wares This has not often been done and, for one reason, because half-tone blocks giving the outline of the subject will not give a very clear definition when printed on a bronzed surface This drawback may be overcome to some extent by the use of line blocks as shown in the illustration.

It may be urged that illustrations of this type are inclined to appear a little flat, but the use of a metallic ink for many purposes is so much more realistic than any combination of two-colour pigment inks that it is not surprising to find that a number of advertisers are asking for it.

"Seven Golden Rules" have been published for the guidance of the less experienced bronze printers, and in case any reader may be one of them I append the list for his information

1. Coated or similar absorbent papers are the best to use.
2. Ink must be well stirred immediately before using.
3. Nothing must be added to the ink
4. Ink should not be put in the duct until the machine is otherwise ready to start printing.
5. Rollers should be adjusted so that they roll lightly over the forme.
6. Only carry sufficient ink to cover the forme, otherwise the fine work will get filled up.
7. Machine should be washed up when stopping for dinner-hour, etc.

AUTOMATIC PHOTOGRAPHY.

By CHAS. GRAVIER.

The Irish Photo Engraving Co.

Ellis & Walery, photo

Miss Maude Andrews

IN last year's Annual I pointed out how I had been led to consider the automatic method of photography as the most certain for always obtaining a useful negative. I am now going to describe the definite method which repeats systematically the order of the same, and this will enable the ideal of photography to be attained, *viz.*, the possibility of obtaining in the apparatus a negative spontaneously and rapidly without any further manipulation than a subsequent washing.

Résumé of the Method.

This very simple method, even in its complete form, is based on a preliminary trial by the operator of the products (the sensitive surface and developer) as well as of the shutter which determines the time of exposure.

These trials can be made in *a few minutes*, as we shall show, *without any special knowledge*; they only have to be made *once* by testing the shutter, when buying the camera, and by adopting a chosen brand of sensitive plate and developer.

I have taken as a developer Adurol Hauff, but any other will do, provided it satisfies the special condition A, dealt with below.

Result: considerable economy in the products used and the certainty of obtaining good negatives.

A. Trial of the products. This can be done simultaneously.

The test is based on an irrefutable fact, *viz*: *that a developer must not fog (during the time necessary for development) a sensitive surface which has not been exposed to light.*

Example. In the Adurol solution is placed a small piece of the sensitive plate which has not been exposed to light, and after five minutes -the time indicated for this developer -it should not show any fog when viewed by transmitted daylight. This confirms also, after development of the image, that only reflections of the subject transmitted through the apparatus will blacken the plate.

B. TRIAL OF THE SHUTTER. Example: 1. Focus the apparatus on a building directly lighted by the sun. The lens has been stopped down to F/45 and the exposure is made with the cap for $\frac{1}{4}$ second in the summer and 1 second in the winter. 2. Without disturbing the apparatus, and making use of the same direct illumination of the sun, the lens is stopped down to F/11·3 and the shutter to be tested is set to a speed proportional to the increased size of this diaphragm, *viz* $\frac{1}{10}$ second (another plate of the same kind as before having been placed in the same dark slide). The exposure having been made, the two plates are developed simultaneously in the Adurol solution for five minutes.

If the shutter is well regulated, the two negatives will be identical as to density and as to tone, since the exposure of the two plates has remained proportionately the same.

It will be thus seen that the plate, the developer and the speed of the shutter can be tested together in less than ten minutes

For snapshots I favour the use of one speed of $\frac{1}{40}$th of a second as is done with cinematograph apparatus; and with backed plates I obtain a latitude of twenty times the exposure time. I always use large diaphragms, F/8, F/5, F/6, F/4, which are larger than diaphragm F/11, but the speed remains the same as for the latter ($\frac{1}{10}$th of a second).

Naturally, if the diaphragm be enlarged without the speed being increased, and the lighting of the subject remaining the same, the picture on the negative will be darker; with twenty times the exposure with diaphragm F/11, the halo of diffusion also occurs and the negative is almost opaque. That necessitates a longer exposure for the print (from 80 to 100 that of a negative taken with F/11), but if the clear parts of the subject are not veiled over, the print is excellent. Therefore to obtain a perfect negative, with a great latitude in the time of exposure, an orthochromatic or anti-halo plate should be employed.

A backed plate ensures great clearness; further, when the plate is dyed, as for instance with the Hydra plate, the clearness becomes *ideal*, as the halation due to lateral diffusion is then avoided as well as the halation due to reflection. This is what constitutes the value of the Hydra plate.

In order to do away with the dark room I have invented a portable developing apparatus which can be carried in the pocket. It avoids contact with the solutions which soil the hands and the dark room, the latter also very often having a very sickening odour. With my apparatus the operation of development, as well as the changing of plates, is done in broad daylight.

For taking a snapshot the rapidity of the subject is first taken into account, if it is not more than suits $\frac{1}{10}$th of a second I use the diaphragm F/11 (it is necessary to use a sensitive plate which gives a very full image of the subject at a speed of $\frac{1}{10}$th of a second with this diaphragm on a subject lighted directly by the sun). If the subject is in the shade, but well-lighted by a clear sky, the speed will only be $\frac{1}{5}$th of a second with the same diaphragm F/11. Lastly, if the image, on account of bad light, is almost invisible in the details with F/16 the time of exposure will be $\frac{1}{2}$ of a second with diaphragm F/11. When using a larger diaphragm for the three above-mentioned exposures, it is necessary that the speed should be greater in proportion, for the normal exposure on the plate having to remain the same, whatever be the diaphragm or the speed, this being one of the logical principles of the method.

For further details reference should be made to my pamphlet "La Méthode Photographique Opératoire," price 7d, which can be obtained from me at my address, 17, Rue des Moines, Paris. It is, of course, in French, but I hope that shortly an English translation may be published.

London & Provincial Reproduction Co., Ltd

Kenneth I. Bishop, photo

WASHING DAY

COLOUR PRINTING EQUIPMENT.

A COMPARISON.

By J. HODGSON HUNTER.

IN a previous issue of the "Annual" I treated with practical three-colour printing from the point of view of one class of machine.

It is my intention in this article to compare some of the mechanical features in cylinder presses now usually used for this class of work, points which are frequently overlooked in the laying down of a plant.

In the early days of three-colour work (say fifteen years ago) it was generally thought that the slow heavy platens were the only suitable machines, but in recent years there has been a great improvement, both in machines and operators; impelled, no doubt, by the increased demand and the race for greater production without loss in quality. Much fine work is produced to-day on platen presses, perhaps not in such large quantities, but just as economically as on cylinder machines, owing to the running and maintenance costs being much less.

Colour-work has been attempted by printing two, three and even four colours at once, by using the usual two-colour machines, by connecting up several machines and by specially built machines, but in my opinion, the work is decidedly inferior to printing each colour separately. I will therefore confine these remarks to a comparison of the different motions of the Wharfedale, two-revolution and the top-feed stop-cylinder presses.

Bed Motion.

This is the chief difference in the machines mentioned. In the case of the two-revolution the bed is usually actuated by a rack and pinion, which lends itself to speed, the travel being the same from end to end. The crank action of the Wharfedale and stop-cylinder gives an increased speed of travel in the centre and a dead point at each end. This dead point is used to engage and release the cylinder, which is stopped by means of a brake, then pushed to a definite point at which it takes the next sheet.

In the two-revolution movement the cylinder is driven independent of the bed and is always revolving, one revolution printing the sheet and the next flying or delivering it (hence the name Two-Revolution) so that the difference arising out of the different bed motions is speed, against stoppage of the cylinder, but the matter goes further and necessitates a difference in the "take" and delivery of the sheet.

FEEDING.

The take of the sheet in the two-revolution is the one disadvantage in an otherwise perfect machine. The sheet is laid to gauges which are lifted clear to allow the grippers to close upon it while the cylinder is revolving, there is therefore a fraction of time at which the sheet is "free" neither held by the grippers nor the gauges, this necessitates very fine adjustment to reduce this freedom to the minimum. Variation in running may also cause a variation in the take, seriously affecting register.

In the case of the later patterns of stop cylinder, both Wharfedale and top-feed, the sheet is fed to gauges which hold the sheet until the grippers have closed upon it. There are, I regret to say, some machines of the Wharfedale type on the market at the present time on which the gauges fall away on the rising of the feed-board before the grippers have taken the sheet, such machines are surely not intended for fine register work.

In the case of the Wharfedale there is a further disadvantage, not met with in the two-revolution or the top-feed stop cylinder. The sheet is fed into the grippers face down, and trouble is caused through the soft ink of the previous printing being drawn across the sharp edge of the feedboard, this is difficult to overcome if the work does not contain *gutters* or decent margins.

SHEET DELIVERY.

In this the two-revolution machine has the advantage. The sheet is delivered face up at a reasonable height from the floor and does not require runners or anything whatever on the printed side of the sheet. In some of the latest designs of Wharfedale a face-up delivery is fitted, but it cannot be considered as perfect as the two-revolution, of which the grip edge is always delivered at the end of the machine, whereas, in the Wharfedale it is at the further side of the delivery board. This is not so convenient in the case of small or narrow sheets. In the top-feed stop-cylinder delivery it is necessary to have at least two gutters in which to place the runners upon which the delivery depends, as the cylinder does not follow the sheet round, as it does in the two-revolution.

ACCESS TO THE FORME.

In this point the two-revolution and top-feed are equal, both more convenient than the Wharfedale.

INKING.

The three types of machine are practically equal regarding inking or rolling the forme. The makers adopting the pyramid inkers have the advantage, owing to all four inking rollers being in connection this ensures the first roller, which gets more revolutions on the ink table, imparting some of the ink to the fourth, or roller nearest the cylinder.

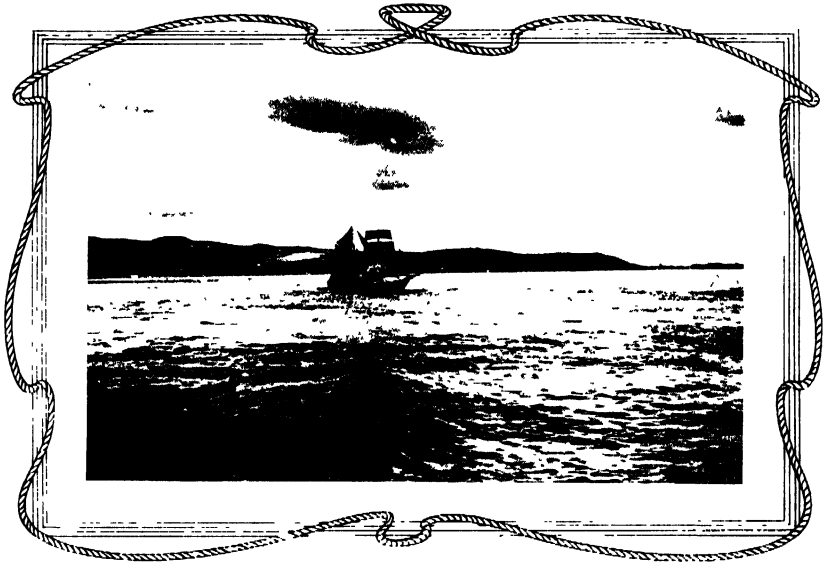
To sum up we find in the two-revolution a machine capable of a good turn of speed with a perfect delivery and easy access to the forme.

In the top-feed stop-cylinder we have a better mechanical condition existing in feeding and register, with a face-up delivery, easy access to the forme, but not quite such a good turn of speed as the two-revolution.

In the most up-to-date Wharfedale we have the means of obtaining perfect register, with the disadvantage of the face-down feed and not such easy access to the forme, but the further advantage in ease of alteration for different sized jobs, which has earned for this type of machine the title of the all-round machine

In conclusion I should say that it is necessary to have a variety of machines in one's equipment, unless it is only intended to do one class of work, in which case I hope my remarks will help you to choose just that machine most suited to the special work.

If this article catches the eye of machine makers perhaps it may spur them on to further effort and result in the evolution of the Perfect Machine



IN THE STRAITS OF MESSINA

THE JOHNSTON ENGRAVING CO — CHARLES H HORTON, photo

Offset Lithograph in Two Colours
by Turner & Dunnett, Liverpool.

Photo by S. J.

"EVENING GLOW."

The Art Reproduction Co., Ltd. [illegible]

THE MATTERHORN (14,780 ft.)

from the Riffel path

STANDARDIZING THE ORIGINAL.

By SUKUMAR RAY, B Sc.

THE HALF-TONE ENGRAVING CO., LTD.

R. BRAID, photo

THE GLEANER

OF all the troubles that beset the path of the unwary half-tone worker, there are none more disconcerting than the pitfalls sprung upon him by the perversity of originals. More often than not, it is in negotiating the uncharted regions of "tricky" originals that the operator comes to grief. Attempts have been made at various times, and in various forms, to systematize and simplify the various optical factors, a proper correlation of which is necessary for the production of a successful half-tone negative. But the complaint usually is that these do not touch the real difficulty of the problem, for it is said, though they may offer valuable guidance for the treatment of a more or less fictitious "average" subject, the operator is still dependent to such an extent on the vagaries of his originals, that he may as well cease to trouble himself about "principles" and "exact" methods, and fall back upon that excellent thing the "operator's judgment." Now judgment is no doubt a very desirable and necessary commodity, for it represents the well-assimilated experience of the past, but it surely has nothing to lose by being supplied with some definite data for its guidance. In this article I propose to make a few suggestions for rendering some "delightful uncertainties" of half-tone work a little less delightful.

It is surprising how easily the eye can be misled as to the photographic values of a subject, not only by differences of colour and tone, but also by slight variations in the relative distribution of lights and shades. It has been suggested somewhere that a process studio should provide itself with a comprehensive and classified portfolio of typical originals, so that, when the operator is in doubt about any particular copy, he has simply to dip into the collection and consult the records entered therein against some similar subject. This would no doubt be an excellent plan, but the time and labour that have to be expended before a sufficiently representative collection can be compiled and classified, in the ordinary way of business, are enough to discourage a confirmed enthusiast. It is possible, however, to devise a modification of this method which would not only be simple and practical, but would give us all the required information in a very definite and useful form.

Before describing the method, we may discuss briefly the precise nature of the information we require about an original. First of all, we must know what we may call the *exposure factor* which, in half-tone work, is practically governed by the *deepest* tone present in the subject, being, in fact, the minimum exposure required to produce sound, printable dots in the shadows. This would be strictly applicable only to originals having a moderate range of contrasts, where we are aiming at something like a facsimile reproduction. In all cases where gradation has to be artificially accentuated or compromised, it is necessary to determine the *range* of tones, or, in other words, the relative exposure factors of the lights and shades in the original. Equipped with such definite information, the operator is in a position to say at once what the main exposure would be, and also what liberties he can take in the way of high-light exposures or unusual stops. He would also know when, and to what extent, it is really necessary for him to have recourse to "flashing," or other abnormal procedures.

In order to determine the exposure factor and range of an original, we only require a few graded strips of different colours, the relative exposure factors of which are known. For all practical purposes, it is enough to have a good scale of greys, one or two well-chosen browns and some P.O.P. strips toned to different degrees of warmth. Unfortunately, however, the idea of calibrating a scale of densities is in many minds associated with fearful visions of mechanical and mathematical complications. To all such, the following method can be strongly recommended as being simplicity itself. Briefly, the method is to compare a half-tone photograph of the graded strips with a similar photograph of a *known* series of exposures made under similar conditions of screen, stop and development. This known series can be readily obtained by exposing on an opal glass evenly illuminated from behind, and progressively masking off at definite stages in the exposure. To secure uniformity, the negatives should be made on dry plates and printed together – preferably on glossy self-toning paper. On now comparing the known series with the unknown under a microscope or strong magnifying glass, it would be found quite easy to assign definite exposure equivalents to the latter, with a degree of accuracy sufficient for our purpose. The known exposure series must, of course, be sufficiently extensive to include the whole range of tones given by the graded strips. The values obtained in this way are really the *actinic* values of our graded strips, which are the inverses of their exposure factors. Thus if we consider the lightest patch, corresponding to white paper, as having an exposure factor of 1, and find it equivalent to our known exposure of, say, 100 seconds, a very dark or non-actinic patch would correspond to an exposure of about 3 seconds and would therefore have an exposure factor of about $\frac{100}{3}$ or 33. The graded strips should be marked once for all with the exposure factors obtained in this way and each gradation patch provided with a neat hole to facilitate direct comparison with the original. In practice, it is not necessary for the colours to be anything like a dead match –as the comparison of two slightly dissimilar tints can be made very effectively through any blue filter that does not transmit too much red.

The operator should get into the habit of mentally classifying his originals according to the range of their gradations, which, as we have shown above, is the exposure factor of the shadows divided by the exposure factor of the high-lights. As we cannot, in a half-tone negative, approach anything like a full range of tones, it would often be found necessary to compromise matters in order to suitably accommodate a long scale of gradations within the limits presented by the "pin-point" shadow dots and substantial high-lights to suit the taste of the operator or the etcher, or whoever may happen to be the dictator. Some originals, again, would require the gradation to be artificially enhanced, so far as a right interpretation of the original would justify. The operator, in attending to these niceties, will find plenty of scope for the legitimate exercise of his ingenuity.

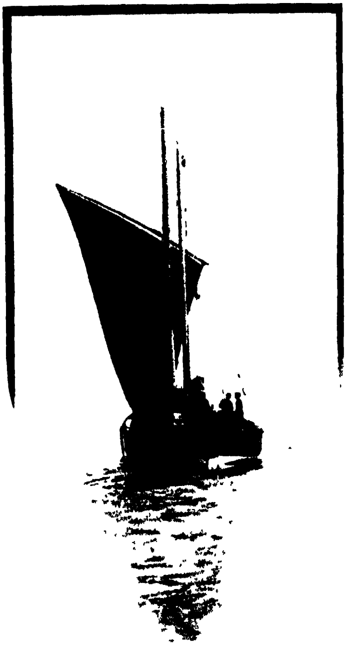
GARRATT & ATKINSON

APPLICATION OF UTOCOLOR PAPER TO ILLUSTRATIVE WORK.

By J. H SMITH, Ph.D., F.I.C.

APART from the chief application of Utocolor Paper to the reproduction of Autochrome and other colour-screen plates, to which purpose it is continually being made more adapted, there are many minor uses to which it may frequently with advantage be put.

In June last the Utocolor Company placed an improved paper on the market, and with this it is possible to obtain with certainty, and with much less trouble than formerly accurate prints of hand-coloured lantern slides and transparencies, glacier prints, stained windows, engineers' coloured plans, and even three and more colour paper press prints, chromolithographs, etc., etc. Paper prints may be printed without oiling, but of course they take longer to print. The oiling is an easy process. The print is rubbed in evenly at the back with a tuft of cotton wool dipped in a solution of two parts of methylated spirit and one part of castor oil.



Hill & Co K F Bishop, photo

OFF TO THE FISHING.

An advantage of coloured prints on paper and film supports over coloured plates is that the thinness of the paper or film allows of printing so that the Utocolor print is not reversed as in the case of glass plates, although the defect in the latter case may be also obviated by the use of the stripping paper.

There are many cases where such bleach-out prints may be valuable, *e.g.*, in small editions of scientific and other works where the expense of the plates for ordinary colour printing would be prohibitive; in obtaining copies of water-colour drawings if the paper used is not too thick, and many other uses that will appeal at once to those that are connected with colour work of various kinds. Coloured plans of buildings is another case which might appeal to architects, who generally require only a few copies. Pinatype and three-colour photographs on glass or film yield excellent and accurate prints in brilliant colours on Utocolor paper.

Unfortunately the Utocolor prints are not yet permanent enough to hang up near windows, but in many cases it may be sufficient to keep them in albums or in books, where they keep indefinitely.

The improved Utocolor Rapid Paper that has recently been placed on the market does not stick as the old paper frequently did, and is not affected by humidity and by variations in the intensity of the light as the former paper was, so that it is more convenient to work and more certain in its results. A new yellow Y filter is required in addition to the G and MG filters formerly employed, and this is laid on at the commencement and kept on till the print is about half finished, and all details fully out. If then the colours are well balanced the Y filter is left on till the picture is finished, but if the print shows a preponderance of red tones the G filter is put on, or the MG filter should the G filter prove too weak. Near the close of the printing if a yellowish tint prevails over the whole print (and not only in the high lights) the printing may be finished without any filter. The principle of fixing is much the same as before and the fixing is somewhat better. The baths, however, are slightly altered to suit the new paper better, the time of fixing in the tannic acid bath having been reduced to ten minutes, while the second concentrated bath is diluted 1 : 3 and applied for three minutes as formerly.

Prints from Autochrome plates are obtained more regularly and with greater certainty, and are more correct and harmonious in rendering than hitherto.

The more I work on the Utocolor process, the more I become convinced that its defects may be overcome one by one, and that no limits can at present be placed upon the degree of perfection which may ultimately be realized.

SOME COMMON CAUSES OF AIRBRUSH FAILURES.

By FRANK W. BROOKMAN.

THE advent of the airbrush as a tool for distributing colour, has opened up a field of expansion hitherto undreamt of by artists, designers and ticket writers, etc., but this valuable little ally will respond with full efficiency only on condition that certain limitations of its power be recognised and made allowance for. Ignorance and lack of proper care will result in failure and unmerited abuse of either the tool, the colours used, or possibly both, for reasons which I will endeavour to explain

The best-known type of airbrush has a long fine-pointed needle, fitting through a platinum sleeve so closely and accurately that when in its forward position it would be difficult, nay, impossible, upon merely pressing down the lever to allow even clean water to escape, but upon drawing back this lever (to which the needle is attached), with the downward pressure still maintained, a fine spray will be scattered which will increase in volume the farther the needle is drawn back. The full extent of the needle stroke does not exceed $\frac{1}{16}$th of an inch, and so gradual is the tapering that even when drawn back to its maximum, only the thinnest mixture of colour can pass evenly between the sleeve and the needle It follows, therefore, that if we are to obtain the most satisfactory results, it will be necessary to build up our tint by repeated spraying with thin colour until we have reached the brightness or strength required. Such work, when finished, will be practically grainless, and not liable to rub off, provided, of course, that the drawing surface is free from greasiness or has been primed by either of the following methods: (1) Rubbed over gently with a pad of cotton wool dipped in prepared pumice powder, (2) sponged over with weak oxgall, or (3) coated with a thin substratum of albumen or gelatine.

This priming is necessary only when working over highly glazed cards, or photographic surfaces which are liable to repel colour.

Bristol boards, Whatman, or other drawing papers will not require this treatment if quite clean.

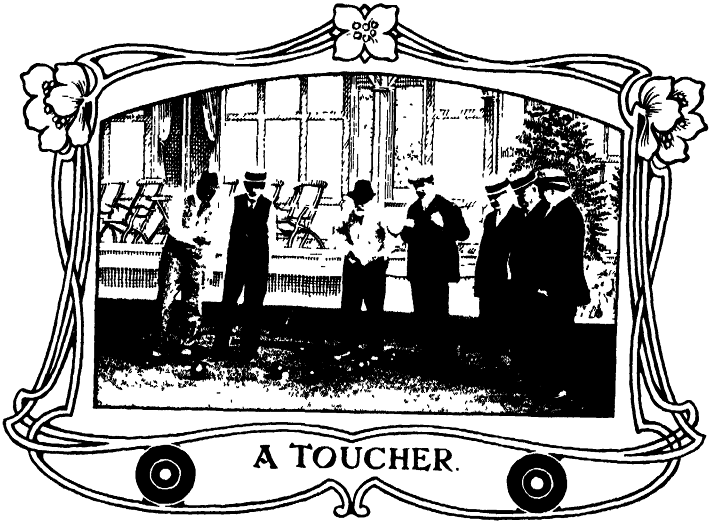
It is of the utmost importance that the airbrush should be kept scrupulously clean, and never laid aside with a trace of colour remaining in it, or trouble will assuredly follow. Pass two or three lots of clean water through it before commencing work, also on completion, before putting it away in its case. During use it should occasionally have the inside of the nozzle cleaned with the point of a brush, and this very frequently if body colour is being used, or it will accumulate round the point of the needle and cause trouble by frequent spitting

Quite the majority of airbrush failures are traceable to the use of colour mixed much too strong or thick, instead of building up gradually with weaker colour in the manner already described. Ticket writers and designers are the people most prone to err in this direction when attempting to obtain their strong effects by one short spraying of colour used much too thick. Such methods are foredoomed to failure, for not only has the spray a disagreeable sandy grain, but it will also possess a strong tendency to rub off on the slightest provocation for the following reason.

The stability of a water-colour tint depends upon a certain quality of absorption in the paper surface, and when this is laid on by hand with a full sable or camel's-hair brush, the best conditions have been fulfilled to secure its firm attachment, such wash being of a united or continuous character Subsequent washes may be added without disturbing the previous ones, provided, of course, that these have been allowed to dry.

Now, if for any reason it is thought desirable to augment these hand-laid tints by finishing ones sprayed over with the airbrush, this may safely be done.

The case is very different with colour laid on entirely by the airbrush An airbrush spray, even when applied under the most favourable conditions, has not the same hold of the drawing surface as the wash painted on by hand. The colour is blown over the paper in the form of scattered dots separated from each other at varying intervals according to the distance the point of the pen is held from the surface. The farther away, the wider apart the dots, and the more liability to rub off at this stage, because much of the moisture is evaporated from the colour before it reaches the paper, and its hold is somewhat precarious The sole chance it has of adhering firmly depends upon repeated applications until these isolated dots are joined by others and so merged into a continuous tone When strong or imperfectly mixed colour is used, this scattering action is still more pronounced and with it there is increased tendency to rub off, because the air pressure, taxed to its utmost capacity in drawing it through so small an aperture, leaves these minute colour particles insufficient moisture with which to attach themselves firmly. In a vast number of cases, the airbrush tint represents only ground work upon which it is necessary to add further drawing by means of brush or pen, and it is here that serious difficulty is met with, because unlike the hand-laid washes, the airbrush one parched on its surface for the reason already described, is of a porous character and easily works up under the brush or ruling pen, and absorbs the colour, causing it to spread in a manner suggestive of blotting paper. This difficulty can best be overcome by rubbing over the airbrushed surface when quite dry, with a clean pad of cotton-wool, using only sufficient pressure to remove the "bloom." If a little gum water be now added to the colour in ruling-pen or brush, but not sufficient to allow of the added work drying with a glaze, it will be found to work satisfactorily.



A TOUCHER.

The Acme Tone Engraving Co., Ltd F. W. Cotterell, photo

Printed on the
Harris Offset Press
by
Waterlow Bros & Layton Ltd

INTERIOR OF A DUTCH HOUSE

(National Gallery)

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WHERE DOES THE SMALL ELECTROTYPING CONCERN LOSE MONEY?

By GEORGE E. DUNTON.

Being a sequel to the article "The Unit Cost System Applied to the Electrotyping Trade in America," which appeared in the 1912-13 *issue of* The Process Year Book, *Vol.* 18.

PHILIPSON & SON   A. L. HITCHIN, photo

MAY WE COME IN YOUR BED?

SINCE the publication of the 18th volume of the "Penrose Pictorial Annual, *The Process Year Book* for 1912-13, requests have come to hand for a continuation of, or a sequel to the article, "The Unit Cost System Applied to the Electrotyping Trade in America," which appeared in that issue of the *Year Book*, and the hypothetical question is propounded, "Where does the small electrotyping concern lose money?"

Speculatively, in the acquirement of legitimate "Gold Bricks," owing to the fact that in many instances the proprietors of the small, as well as the larger concerns, are not thoroughly versed in the operative application of the art as a strict business proposition, or they lack the proper training in the practical manipulation of the art as a manufacturing science, having theory without practical experience, this class of manufacturers form an easy prey to slick salesmen. But this class of men are more often the proprietors of the larger concerns, or the managing heads of such concerns, having the command of a competent bank account and no tribunal of folly inquiry.

On the other hand the little fellow, who is in business on his own hook, on his own money, and who must make his living, as well as accumulate a contingency fund from the proceeds of his business, does not have the ready cash to invest in untried schemes, he must rest content to let his wealthier competitors do the trying out, he adopting them later if competition forces him to do so or his patrons demand their adoption, otherwise they prove of no particular moment or interest to him. Quite the contrary is likely to be the condition and he endeavours to scrape along without many of the well-known money-saving and making adjuncts to his business unless he can purchase "on tick," for he does not feel that it would be good business policy to take the money from the sinking or contingency fund. Having thus generalized we will presume to proceed and make the statement that :

Many of the small concerns and the larger ones too, for that matter, lose money in many places. I will offer a few suggestions from observations which I have personally made in visiting some of the different foundries.

One point of considerable loss is the moulding and its allied branches, contributory to which are many causes, basic among them are inadequate case-filling facilities, not sufficient help, unintelligent manipulation of the operation and unsuitable moulding pans. This may seem quite an arraignment for the initiatory, but such is the fact. The majority of firms are at the present day using the home-made backing metal cases. I did this for a great many years before becoming fully enlightened to the fact that it was a very expensive proposition. We were compelled to make on an average ten of these pans every day to maintain the required number to handle the output of work. Several years ago, 1904, all the backing metal pans were discarded for thin, soft copper sheet, cut to the proper sizes. These pans have been in constant daily use ever since, are in use to-day, and are not much the worse for wear. They are, every one, good for several years' more wear and we have something like 150 or 200 of them.

Many of the foundries have no provision for cooling the cases after the wax has been run on the pans, which means that they are able to fill only about one-third the number of pans each day that should be. I have seen two case fillers trying to keep four moulders supplied with cases operating one filling table each, without any cooling means for the tables. It is unnecessary to state that the moulders were not turning out the amount of work that they should.

In another place visited they had four moulders, each of whom shaved down his mould, prepared the forme, took the impression, trimmed down and flamed off the trimmed mould before passing it over to the builder-up. Properly handled this entire volume of work could be accomplished by one moulder with a builder to trim down and flame off the trimmed moulds before passing them over to the regular builder. By this method of operation one moulder will make it interesting for two case fillers under the most favourable conditions.

In an establishment having work enough for four moulders under the conditions which I have set forth, they have enough work for two operatives at the furnace for backing up. One man trims, acids and covers the shells with foil, while the other pours the metal, takes off the pans or casts, passes them over to the first man, who removes the loose metal from the face and turns them over to the pan washer. In the interim, the first man has washed off the backing pan, placed the second shell thereon and swung the pan into the metal pot.

With the foundry operated along these lines there will be no necessity for the introduction of any unit cost system, only the good fortune to secure sufficient business to keep the workmen busy and they will have all they can do to turn it out for you.

In the finishing end of the business there are two sources of loss which are more potent, the one takes considerable profit out of book-work and the other robs so-called job work, that which is mounted on wooden bases, consequently it is impossible to apply the one to bolster the other, because each has all it can do to make a showing for itself. In making book-plates we have no adequate trimming machines for shaping the bevels on the sides and bottoms of the plates nor machines for squaring the heads, with the single exception of the so called duplex trimmers, which some of the printing press builders supply with their particular types of presses, where the plates are bent a special curve for the cylinders of these presses. In my reference to book-work I had in mind the flat plate. During a visit to a large publishing house recently, a call was made to the foundry. In the finishing room two workmen were operating one of the bevelling and squaring machines. They were sitting down, one on either side of the machine facing each other, and as the work progressed were carrying on a very interesting conversation relating to the "raising of chickens." It occurred to me that as the interest in chickens increased, the interest in machining book-plates decreased; however, as rapidly as the first workman put the bevels on the two sides and bottom, the second workman squared up the head. This machine, at its best, operated under the most favourable conditions is but a relic, a reminder of a past which was, we admit, glorious, but other conditions of the business have long ago developed and improved to such a degree that there is no longer licence for the retention of this old and inadequate piece of apparatus. In the first place all book-plates must be sawed up, that is, have nearly all of the guard line removed by sawing, before the bevels are put on, this means two operations to secure the one result. The new machine should be capable of removing not only the guard line surplus, but making the bevels on both sides of the plate at the same time and in the one operation. The holding of the plate should be a one-motion clamping device of the locking eccentric type. The cutters for the bevelling side of the machine should be the milling type of "tail cutter," as used in the duplex trimmers. I never could understand why the manufacturers of electrotype machinery clung so close to the old two and three cutter heads for their bevelling machines against the twelve, sixteen or even thirty-two toothed milling cutters.

On the squaring side of the machine is even a worse manifestation of barbarism, a round head with three or four ends of round steel called cutters sticking out Compare such a means of trimming with a fine point, hollow-ground circular saw, the arbor above the cutting plane, that is the saw cutting through the plate from the top downward and on a line tangent with and in the direction of the rotation of the saw rather than forcing the plate against the saw. If so desired, this arbor can be fitted with the saw on one end, and the bevel cutter on the other and opposite end, permitting of the complete trimming of the plate in two operations against eight as the flat book-plates are bevelled and squared at the present time It certainly does not need a unit cost system here to correct this leak in your business.

In the jobbing end of the business, we have at last been supplied with a mechanical device for driving the nails through the plates into the wooden blocks for anchoring the plate to the block. This machine has been very welcome and helped to increase the output to quite an appreciable extent But the trimming of the blocked cuts on the sides is still dependent upon the same old type of machine which did service for our grandfathers and they used to sandpaper the sides of all their cuts after the trimming and sometimes even varnished the blocks. In all fairness of spirit I must admit that this machine has had some improvements, for it now has the movable table or bed and the round pieces of steel sticking through the head have been replaced by cutters similar in many respects to the "shoot-plane irons," and in some instances supplemented by two "half-round nose" cutters hollowed out like the carpenter's hand gouge But all these trimmers still have that same old barbarous round type head. In the operation it is first necessary to saw the cuts all apart, leaving very little surplus wood along the sides, then the four sides are trimmed one at a time, making a total of eight operations to trim one, and each and every cut. All the larger electrotype machine builders still stick to this same old principle, however I believe there is one smaller manufacturer who has produced a trimmer, in combination with some other machine, which has departed from the old round head and uses a saw and moving table.

The new idea trimmer (when you see one please remember that you read about it in THE PROCESS YEAR BOOK) will have a saw, hollow-ground and with fine or close points, with the arbor placed beneath the table or bed; that means that the saw will come up through from under the table. The table will be in halves, split through in line with the saw, that is the aperture or slot in the table through which the saw protrudes. The saw slot will in matter of fact be wholly within the edge of one half of the table, that half which is stationary and made fast to the frame of the machine. The other half is slidable past the saw in a plane perpendicular to the axis of the saw or parallel to the cutting edges or side of the saw. This slidable or movable half of the table carries the clamping device for holding the blocks to be trimmed and a squaring means attached to the stationary part of the table, and in line with and in front of the saw is placed the lining or trimming gauge of sufficient range of swing to allow it to sweep over several inches and easily detachable from the table.

It will be readily seen by the practical electrotyper that with a trimming machine of this type a wide range may be covered, and with due care in nailing on plates there is no need of a preliminary sawing apart from the different jobs, a block containing several jobs of widely varying sizes may be brought to this machine and with the same cut that rips the jobs apart, one side of one job is trimmed at and with the same operation. Of course, some forethought must be exercised in nailing the several jobs on to the block, to give the saw a chance to pass between the plates without cutting into any of the others in making the first few separating cuts through the block.

The smoothness of the edge of the block, especially across the grain of the wood, will depend upon the closeness of the points or cutting edges of the saw teeth and the concavity of each side, or particularly the front side, next to the slidable half of the table.

This potent leak in the manufacturing of blocked electrotype plates needs no unit cost system to discover where it is located or the most efficacious method of eliminating its cause, neither will it take some of the builders of electrotype machinery many years to adopt the hints which I have herein given, and incorporate the ideas advanced into two much better machines than we have at the present time for the trimming of flat book-plates and also blocked electrotype plates, and possibly the combination may render the "Unit Cost System" superfluous and unnecessary.

The making of electrotyped printing plates by the lead-moulding process and in the nickel alloy instead of the copper shell is sound business, provided an adequate price can be obtained for the work, but in competition with the wax-moulded electro and the regularly deposited copper shell at the same price is a fallacy and not sound business. Neither is it good business to endeavour to persuade your customer that results are far superior, for such claims are contrary to the fact. But this is not the topic in discussion.

The necessity of paying a fabulous price for the privilege of moulding in lead as a medium in the stead of wax, has been exploded by an enterprising firm in America, who are building a moulding press which will do this class of moulding, and the price is about one-fifth what was charged for the original outfit, and the entire surface is forced into the lead at one impression. This method is far superior to the step method, which was all that the original vendors of the process had or could patent in America. This leaves anyone free to use lead as a moulding medium for the production of electrotyped duplicates, provided they do not take the impression on the instalment plan, or by a succession of steps, which to my mind is inferior to the one impression method.

Neither is it necessary to pay fancy prices for the so-called wet-leading processes, which are merely modifications or modified methods of Silas Knight's original process, patented in 1871 and 1872. If the electrotyper believes that he will produce better results by moistening the graphite with which he is to make the surface of his wax mould conductive, all he has to do is to have a suitable sink or tank made of pine, lined with sheet copper, or the sink made of some stone, provide a suitable pump, connections and spraying nozzle, which can be installed complete for less than two hundred dollars, and he can squirt the wetted graphite over the surface of the wax mould to his heart's content. It is a fact that none of these so-called wet-leading processes are protected by method patents, only such as come under the classification of mechanical apparatus or modifications which are improvements.

KNIGHTON & CULL GILL & SON photo

LULLABY

A USEFUL DRY PLATE INTENSIFIER.

By E. A. BIERMANN

THE following intensifier for process negatives on dry plates will be found particularly useful, and on account of its being a single solution, far more practicable than the usual mercury bichloride, followed by a blackener of whatever composition

A	Bichloride of mercury ..	1 oz.
	Water ..	30 ozs
B.	Iodide of potash	3 ozs
	Water ..	10 ozs.
C	Acetate of soda	2½ ozs
	Hyposulphate of soda	1½ ozs
	Water ..	20 ozs

Dissolve A. B. and C. separately and add B to A until the red precipitate which is first formed is just redissolved Do not add more of B solution than is necessary to accomplish this reaction, then add solution C. This makes a very strong intensifier, which should be diluted to half strength for use, the stock solution must be kept in the dark or it will lose its strength very rapidly.

It is particularly useful for evening up half-tone screen negatives that from one cause or another have areas of unequal density, or for local intensification of shadows, the solution being applied to the surface of the negative with a tuft of cotton wool, the action can be watched and arrested at the right moment, and the surface effect being a grey discoloration, it is easy to observe its progress The plate should be rinsed under the tap from time to time, and the result upon the dots examined with a magnifying glass, and continued or not as the case may demand If it should be found that the intensification has been carried too far a little weak hypo solution will act as a reducer, so that it will be seen that it is very elastic.

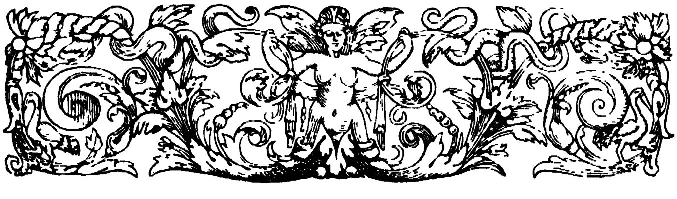
In principle I am opposed to the intensification of half-tone negatives on dry plates as a general practice, as it is possible to get all the density required by correct exposure and development only, but cases will arise, either through uneven lighting of difficult originals or faults in the originals themselves, where a certain amount of faking becomes a necessity, in such cases it is far more satisfactory to be able to use such an intensifier as this, because its action is positive and the full effect can be seen at once and not after a second operation, which frequently shows the intensification to be too strong or too weak, with very little chance of alteration. In tri-colour work it is extremely useful in the hands of a careful operator, because of the ease with which it can be controlled.

For line negatives on dry plates it is also useful, but must not be carried too far or it will fill up the fine lines, but if this happens they can be cleared again with weak hypo solution or in very bad cases a little ferricyanide of potash solution can be added to the hypo when the clearing action is stronger

For very weak continuous tone negatives it is *par excellence*, and in extreme cases can be followed by the usual mercury and ammonia, thus obtaining a far greater degree of intensification than is possible by the double method alone, and it also has the advantage when used alone, of picking up shadow details and producing less soot and whitewash effect than the two solution method

If the negative appears to become yellow during washing it can be disregarded, as it will dry out, or in extreme cases it can be removed by a flow of weak hypo which will not affect the general density unless the action is prolonged. With regard to permanence it is no worse than other mercurial intensifiers and can be made much better by immersing the intensified negative in a clean working dry plate developer for a minute or two, but as process negatives are not usually required to be kept for more than a few weeks this is unimportant. It also has the advantage of being less poisonous than the bichloride of mercury solution. Less washing is required after fixing when using this intensifier, as it is not necessary to totally eliminate the hypo, as is the case with the double process The only trouble that need be feared is that if there is too much hypo in the film it will act very slowly or not at all.

Finally it is the result of many experiments to find the best formula, and has been in constant use for at least fourteen years, so that I can recommend it with every confidence



GARRATT & ATKINSON.

A MASTER CRAFTSMAN.

By AMOS STOTE.

LESS than a year ago the book reviews of England and America gave no small space to the praise of a new volume of short stories, "The Door in the Wall," by H. G. Wells. Author, publisher and illustrator each came in for his share of applause as a result of this limited edition of a masterpiece in bookmaking.

Unfortunately, the man who created the book from cover design to type, who lettered the headings, executed the decorations, wrought the initials, who planned, arranged and compiled , the man who gave the book its great art and intrinsic value was not even enquired after. This omission might easily have resulted from the reviewers' failure to consider the possibility of one person being the master of all the related crafts that go into the making of books. The peculiar interest that attaches itself to the work of the craftsman who actually accomplished these varied tasks lies in the fact that he has proved the real, accumulative value of increased strength and harmony resulting from the combining of such efforts.

That Frederick W. Goudy has trained his hand to perform excellently all the details of the arts and mechanics that go into the production of books is due not alone to desire. Less than a decade ago Necessity drove him to make the personal effort in all work he would do in this direction. Bread without butter has been the "appetizer" of many a man who has striven to reach the banquet hall of Success. When Mr. Goudy was struggling along this steep road he early learned that, without money, the completion of his work must remain entirely within his own ability to produce. The "blessings of adversity" were never more completely disguised , yet in the light of to-day, in the finished product they have made of him, they could hardly be more wonderfully defined.

Because of these hardships, followed by several years of the most satisfying recognition as a master craftsman, there are to be learned from this artist's work those safe and instructive principles which may only be secured from the achievements of one who has built consistently.

A mere recital of difficulties surmounted has decided inspirational value , but greater far are the practical lessons to be gained from the actual accomplishments of one who has realized nothing short of excellence in production. To speak again of the book, "The Door in the Wall," the almost perfect harmony it possesses could hardly be obtained were not all its created parts the work of one man. Several craftsmen working together in the most intelligent co-operation might

THE DOOR IN THE WALL

And Other Stories

BY

H·G·WELLS

ILLUSTRATED
WITH PHOTOGRAVURES FROM
PHOTOGRAPHS BY

ALVIN LANGDON COBURN

NEW YORK & LONDON
MITCHELL KENNERLEY
MCMXI

82

ANNOUNCEMENT

of a volume of stories by H. G. Wells, *with illustrations from photographs by Alvin Langdon Coburn, to be printed on hand made paper at the Village Press and published by Mitchell Kennerley in New York and London.*

HESE unusual stories by Mr. Wells will come as a surprise to his readers They are quite different from his other work, for though they have all the imagination and originality for which he is famous, they have also a special and almost unique quality They can be read as striking tales, holding attention and interest throughout, but they can scarcely be read without a realization of something deeper and finer than is found in ordinary fiction. In The Door in the Wall, especially, there is a sense of poetry, of the strangeness and mystery of life. Very skillfully and delicately is the story told, of the Cabinet Minister and the unclosed door —“the door that goes into peace, into delight, into a beauty beyond all dreaming”, the door that opened into the garden of dreams, “full of the quality and promise of heart's desire ” Yet the atmosphere of reality, the action of the normal, everyday world, is not lost; the story is not a mere fantasy, and the successful statesman who figures in it is not the only one who may have had at intervals, from childhood onward, “in truth, an abnormal gift, and a sense, something . . . . . that in the guise of wall and door offered him an outlet, a secret and peculiar passage of escape into another and altogether more beautiful world.”

The strength and feeling shown in this first story are maintained in the others, and the collection is one which all interested in both the normal and abnormal will value.

The size of the book will be that of this prospectus, with ten photogravure illustrations by Mr. Coburn, one of which is here reproduced in halftone. The type shown on the specimen page was designed for this volume by Mr. F. W. Goudy under whose care this book is being printed. The edition is limited to six hundred numbered copies for England and America and subscriptions should be mailed at once to the publisher.

come close to such a standard; but a volume of this character may well be likened to a painting of which one man put in the trees, another the thatched cottage, and a third the winding stream. The result would hold more interest as a curiosity than as a work of art. From the Goudy point of view the "book beautiful" must be considered as a whole, from the lettering on the cover to the decoration at the conclusion.

In the type which Mr. Goudy designed for use in this book he knew there must be something more than is conveyed in the customary expression of *book face* So he set himself to the production of a type that would fit the nature of the text, the size of the page, even the quality of the hand-made paper to be used throughout the volume. It must be rich and colourful while maintaining legibility The first two qualifications demanded special consideration, because of the breadth of type line and the wealth of margin. In addition thought must be given to the full-page photogravure illustrations, so that the pages of letterpress facing each might carry their weight of artistic attraction without appearing too heavy for the soft tones of the plates.

When the problems involved in the execution of the type had been solved, there remained the many questions relating to the size and decoration of the initial letters, the lettering of the cover, title page and headings It was not simply a matter of having all these in harmony with the type and in keeping with the unusual size of the page, there must be sufficient variety to prevent any suggestion of monotony.

These varied, and yet so closely related tasks, could only be worked out by keeping one thought constantly in mind– the book as a unit, as a harmonious whole. An intelligent understanding of this vital subject has been granted Mr Goudy after years of service as a printer. In the early days when he established the Village Press, when necessity forced him into the performance of all the operations that went into the production of the choice volumes he issued in limited editions, the matter of book harmony came to be so much a question of science that he has reduced the theme to a series of principles which have remained as his faithful guides From the fulness of experience acquired through being the designer of some score of type faces his own beliefs on the subject are well worth quoting

"Types are made for use and should be spontaneous in design, the work of a designer who knows his letters, their history and development, one with a full comprehension of the crafts of cutting and founding them. The necessary element of rhythm is obtained only by a complete anticipation of the effect of his drawings *as type*. This rhythm or harmonious quality is the result of feeling and is not gained by mechanical means.

"Curves are, with such handling, carefully considered quantities, varying in each letter. Natural irregularities and deficiencies, which are the result of a mind intent on design and not on mere execution, are the

THE METROPOLITAN MUSEUM of ART
CATALOGUE
# of the
DUTCH PAINTINGS in the Hudson-Fulton Exhibition

IN response to numerous requests the Metropolitan Museum of Art will publish a Catalogue de luxe of the paintings by Old Dutch Masters in the recent Hudson-Fulton loan exhibition, as a permanent and worthy memorial of this very remarkable collection. The text, by William R. Valentiner, will be substantially the same as that of the catalogues sold during the exhibition, revised and corrected; but both text and illustrations will be printed on Italian hand-made paper manufactured especially for this book, and the type will be of a Renaissance style, modelled on that of Nicholas Jenson. Each picture included in the exhibition will be carefully reproduced by photogravure on a separate plate, and the binding will be of full Persian morocco, with doublure and flies of silk. The present circular will give an idea of the size of the page, as well as of the character of the letterpress and illustrations

This Catalogue will be sold by subscription at fifty dollars a copy. Your subscription is respectfully invited, and as the number of copies will be necessarily limited an early answer is requested. A subscription blank is inclosed herewith, which should be returned to Edward Robinson, Acting Director, Metropolitan Museum of Art, New York, to whom all communications on the subject should be addressed.

evidences of life and give beauty and character according to the ability and knowledge of the craftsman. Finish is sought at the expense of design.

"There is little beauty in individual letters; if each is distinct and the partner of every other with which it is placed, if finely and boldly designed and properly proportioned to the space and purpose, the result will be beautiful.

"Letters are not read by conscious recognition of the separate characters that compose words and sentences, but by the ready comprehension of groups of dissimilar characters, which convey to the mind the thought of the author without loss by the way. There must be an impression of distinctness and the element of rhythm with no attempt to interpose or substitute a beauty or interest in the types for their own sake; but to add to the clearness and beauty of the means of communication is not necessarily to sacrifice legibility.

"There is an inherent instinct to give beauty to things which we use, why not in our printed books? Legibility is the first requirement, but beauty need not interfere with legibility."

A peculiarly striking example of just how fully Mr. Goudy has been able to realize in practice the precepts he has evolved in relation to types is afforded us in the "Village Type," a face originally designed by him for the exclusive use of his press, but which, some years later, was sold outright that the Metropolitan Museum of Art, of New York, might have a type worthy of the catalogue de luxe that institution decided to issue in commemoration of the exhibition it held of Old Dutch Masters.

The only type that could equal the Village in its task of meeting the requirements demanded by so elaborate a publication is the one that has taken its place in the cases of the Village Press, the Goudy Old Style. This face is considered by many experts as the finest product of its kind which has ever been created. But as yet it has been offered no such wonderful opportunity for display and testing as that which has been given the Village in the sumptuous catalogue. The harmony the latter offers in conjunction with the reproduction of these old master pieces is something more than remarkable. As a rule when an attempt is made to give the feeling of ancient design the result is either a slavish copy of some old type, or the affected style of an over-zealous designer, who endeavours to gather interest by increasing the eccentricities rather than the harmonious character of his model.

Moreover, the service of the Village Type in this publication is not one of simple relation to reproduced paintings. In pages composed entirely of letterpress it exhibits a richness that is wonderfully decorative, while losing nothing in legibility. So marked is this quality that even where the display is no more than a few lines describing a picture, the

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THE FORUM

FOR JULY 1911

VOLUME XLVI NUMBER 1

THE REMEDY FOR ARMED PEACE
Baron d'Estournelles de Constant

IS THERE ANYTHING NEW UNDER THE SUN?
Edwin Björkman

THE PASSING OF THE OPIUM TRAFFIC
Rosa Pendleton Chiles

TRYPHENA JANE'S REVOLT
Mrs. Havelock Ellis

LONDON AND THE CORONATION
Sydney Brooks

THE RIGHT USE OF LEISURE
Temple Scott

THE FEMININE ACCENT
Shaemas O Sheel

THE GARDEN OF RESURRECTION
E. Temple Thurston

IRISH POEMS
Arthur Stringer

EDITORIAL NOTES

PUBLISHED MONTHLY BY
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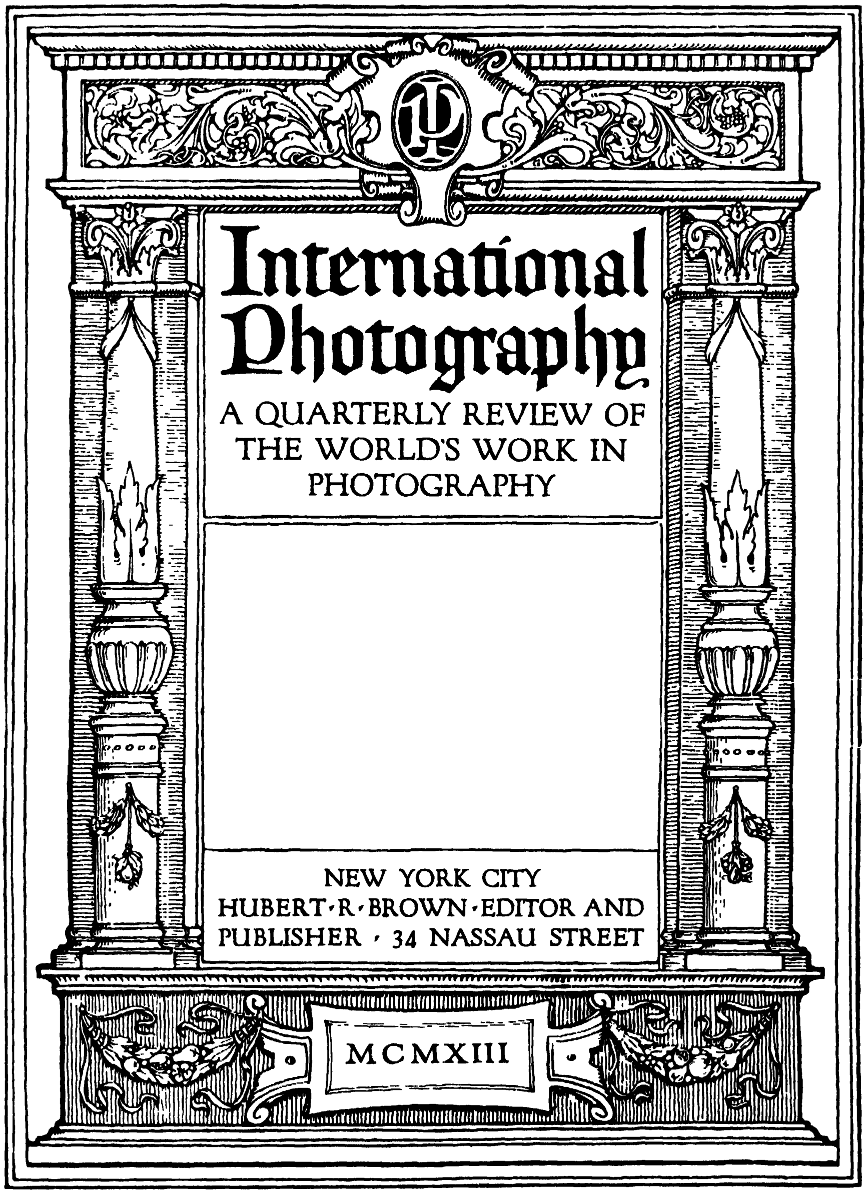
E · TEMPLE THURSTON'S NEW SERIAL



International Photography

A QUARTERLY REVIEW OF
THE WORLD'S WORK IN
PHOTOGRAPHY

NEW YORK CITY
HUBERT · R · BROWN · EDITOR AND
PUBLISHER · 34 NASSAU STREET

MCMXIII

VOLUME L NUMBER 5

WILSON'S Photographic *Magazine*

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY
FOUNDED IN 1864

MAY · 1913

EDWARD L · WILSON CO · INC
122 East 25th Street · NEW YORK

25 CENTS A COPY $3.00 A YEAR

vast margins of white paper never suggest a feeling of prodigality, but rather that they have filled their purpose in giving full value to the type they carry.

In the arrangement, the practical compiling of this work, Mr Goudy had ample opportunity to review all the crafts of book building, so that when he came to draw the display lettering for the headings, and the initial letters, he was full of the subject to the last detail. The first thought concerning a draughtsman of type being also a designer of display letters would be that the latter must almost of necessity be over-severe and hard in character. This craftsman has been saved from any such undue influence. From the beginning of his career by far the greater part of his work has been in the production of display types and decorations for use in advertising matter.

The intermingling of these efforts has given him an unusual freedom of handling, while at the same time preventing any indulgence in the freak style of production Mr Goudy holds that the first purpose of a large letter, as of a smaller one, should be that of legibility and that this quality should grow in direct ratio as the size increases. The liberty allowed by enlargement should be devoted to making it proportionately attractive through clarity Even in the initial letter, to the designing of which this craftsman has devoted so much of thought and effort, the richness and strength of decoration with which he surrounds it is only a beautiful medium, which must first set off the character it conveys and then do service as a decoration for the page

The reason why the decorations which Mr. Goudy produces have become the guides and inspiration of his fellow designers all over the world is because he requires but one return from them that they truly decorate No work of his of this kind ever attempts to tell a story, carry a suggestion of the wares toward which the advertising copy is expected to draw attention, or to in any way illustrate an argument. If it realizes but the one purpose of being beautiful it will, to just that extent, emphasize the appeal the type presents, because it attracts and pleases the eye by the quality of its adornment , therefore its whole purpose is attained.

So far as possible this craftsman makes his designs with a specific type face in view, so that harmony and balance may be assured When the design is for a publication of which he has entire charge it is executed under many self-imposed limitations the nature of the text and the form in which it is to be reproduced, the type to be used, hand lettering with which it will come in contact, even the texture of the paper chosen for the printing

Just how delightfully type, hand lettering and decoration may be brought together is well illustrated in the reproduction shown here of the cover of " The Forum " The architectural style used in the border

CYLINDERS AND OTHER ANCIENT ORIENTAL SEALS

IN THE LIBRARY OF
J. PIERPONT MORGAN

CATALOGUED BY
WILLIAM HAYES WARD

New York
PRIVATELY PRINTED
MCMIX

gives an opportunity to make the decorative effect of a full quality, while keeping the imprint of the individual lines exceedingly delicate. Thus, without perverting the composition of these parts, the text displayed on the cover is not injured, but rather helped, in its efforts to be attractive. Both the lettering and type are the results of Mr. Goudy's study of ancient inscriptions cut in stone, and so lend themselves with peculiar fitness to the architectural feeling surrounding the completed drawing.

As a rule the artist who avoids the lighter side of his work is apt to go too far in the other direction and clothe it with an almost oppressive dignity. It is encouraging to see just how happily this craftsman has prevented such a conception in executing the title page for an elaborate volume dealing with "Cylinders and other Ancient Oriental Seals," prepared for the private library of the late J. Pierpont Morgan To Mr Goudy's trained mind the very nature of the text forbade any attempt at elaborate decoration or border design. To keep faith with his principles concerning the making of a design in harmony with the letterpress, it would require that he absolutely over-ride his ideas as to what constitutes decoration. There was but one alternative, that of making the text to be displayed on this page so complete in itself that any other form of ornament would at once appear superfluous. The accomplishment of this was no easy task because of the very simplicity of the matter in hand. After the style and size of the lettering for the various lines had been decided upon there remained the matter of arrangement, to give the page the essential completeness and beauty.

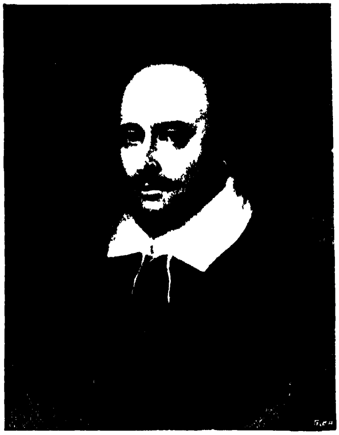
Advertising work has, naturally, claimed a great share of the production of this craftsman, and in some respects may really be considered the best expression he has given to design The fact that so many influences over which he had no control must usually enter into the display of drawings made for publicity pages did not allow him to lower his standard, but rather forced him to keep more strictly within these bounds, on the theory that the more nearly perfect the work may be the less it will suffer in relation with unsympathetic surroundings. There have been days in the career of Mr. Goudy when adherence to this principle has been no easy task.

I have seen him refuse work, because the doing of it would require a compromise on the subject of design, when he did not have money with which to buy a lunch. But I rejoice to say I have since seen the time when, because of the just reputation high ideals have brought him, an advertiser has paid twenty-five pounds per day for his services, and that for several days at a time.

The reproductions of title pages illustrating this article have been made by
The Press Etching Co., Ltd.

PHOTO-LITHOGRAPHY v. OFFSET PRESS.

By CHAS. T KOCK, Cincinnati.



GARRATT & ATKINSON

PHOTO-LITHOGRAPHY was used in the early years of lithography, and afterwards neglected and set aside. At present it is something very new, and very badly needed, since the offset press has made its appearance.

I will describe a little of the past history of printing arts. Gutenberg was the inventor of typographic or letterpress printing, as Senefelder was the inventor of lithography. Both have been rivals to one another until now, when we see them working hand in hand.

Letterpress was the first and oldest process, but the slowest in manipulation while lithography, which came later, was faster in manipulation, but slower in production.

Differentiation of the Printing Processes.

Technically we differentiate the principal printing methods into three according to the method of production. The first and oldest is typographic or letterpress printing, which is founded on the principle that every line or every point which ought to print must stand up on the plate, and all those places which must appear white in the print must be sunken in.

The artistic effect is obtained by tones which are formed of individual lines or points, these being closer together or further apart, or else print finer or deeper. In printing a forme or plate, etc., it must be "made ready," that is to say, the pressure in printing must be so arranged for each part of the picture that on the lighter places or fine places less pressure must be exerted, while on the deeper tones more pressure is required, according to their gradation. This balancing, which is technically termed "making ready," is effected by cutting out the delicate and building up the stronger or darker parts on the overlay. With a proper overlay the artistic effect of the picture can be much increased; with a faulty overlay it will be spoiled.

The second method of printing is exactly the opposite of the first, and is founded on the principle of printing from intaglio, such as steel engraving and copper plate.

The third method is lithography, in which the impression generally lies flat on the paper like a drawing. In considering the theory of printing from zinc plates, we must first become acquainted with the fundamental principles on which lithography rests.

The theoretical principle of lithography is purely chemical, and is based principally on the repulsion of water and other substances by fatty bodies, and the alteration of these greasy bodies by acids.

As the support for this chemical opposition a stone or zinc plate is used, either of which is sufficiently porous to allow grease, water, acid and certain resinous solutions to penetrate to a certain degree.

The zinc plates are now coming into general use instead of stones, especially for offset and rotary presses, in large establishments, being lighter and taking less space.

Although their treatment before and during printing is essentially different from that of the stones, yet so far as regards this method of printing they come equal to stone, holding more detail in combination with photo-lithography.

At first smooth polished zinc plates were used, but in consequence of some difficulties in using them, and the great care necessary in choosing them, they have now been replaced by the prepared or oxidized plates.

Whereas in typography, type and cuts are locked together in what is called a forme, in lithography transfers are pulled from the original stones or plates and stuck side by side and transferred to the printing stone or plate, these printing stones or plates being smooth or flat on their surfaces, consequently need no make ready. Therefore this manipulation is faster than letterpress

The difference comes in the production, letterpress machines running faster than lithographic ones.

But lithography has a softer and smoother finish and appearance compared with type prints.

Now paper comes into consideration, a good coated and enamelled stock giving best results from both processes.

The time has come when (especially for advertisements) production must come quick and inexpensive

Here the old tin press, the slowest of them all, has come to the front, of course with a good deal of improvements, and instead of a flat bed a rotary cylinder was substituted, whilst the zinc plate is used instead of stone, and here we are at the stage of the offset press.

Type and cuts, especially cuts, take some time to make, and then a good deal of time to make ready in letterpress. On the other hand, in lithography, the artists and engravers must draw and engrave everything by hand, which takes some time.

So, in this new combination of photo-lithography with offset press all lost time is avoided.

Reproductions (type or pictures, in black and white or colours) are photographed without reversing same, direct on large zinc plates, these plates being treated by lithographers in their usual way, and are then ready for the press. You thus see that no copper or zinc etcher, no router and no blocker, not even a finisher, is needed, all necessary machinery in photo-engraving being superseded. Nor does it require highly finished, enamelled or calendered paper, the cheapest, coarsest and hardest paper producing the best results.

And then the speed of the offset press, which is the fastest of all presses, must be considered.

General Notes on Photo-Lithography

By photo-lithography we generally understand that process by which it is possible to prepare a printing plate or a stone by the aid of photography from any original, whether it be a drawing, a print or a painting, either of the same size or smaller or larger than the original, and this can be reproduced on the offset press.

The main characteristic of this process is that either the original from which the reproduction is to be made must be prepared in distinct lines, strokes or points, or that any half-tone which may be present in the photographic negative must be broken up on the plate into lines or points.

The basis for the preparation of a photo-litho is as a rule a photographic process negative on glass or gelatine.

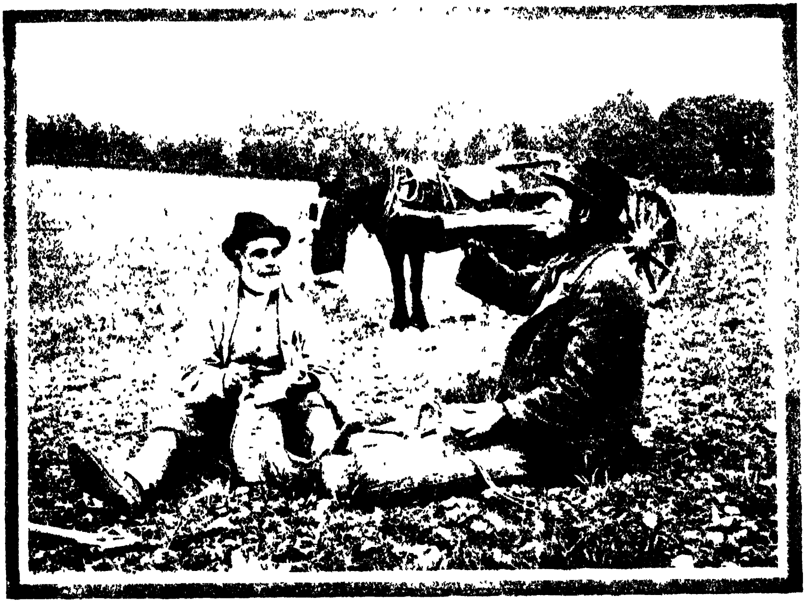
The next question which arises is, "What can be reproduced or multiplied by means of photo-lithography?" The answer is: According to the existing state of the technique of photography and the perfection of the transfer process, everything. Any line or washing, any oil painting or other plastic object, any photograph of living creatures or lifeless objects briefly, any photograph can, under certain conditions, be transferred to a metal plate, and from this any number of impressions in greasy ink be obtained. Before the discovery of the method of breaking up half-tones into points or line or grain, only line drawings could be reproduced by photo-lithography. Since, however, it has become possible to break up half-tones into lines, points or dots, nothing stands in the way of reproducing by this method any kind of original.

The half-tones are broken up and separated into solid printable points --

(*a*) By the half-tone transfer, which is effected by placing in front of sensitive plate, when making the exposure, a cross-line screen

(*b*) By the so-called asphalt process, by means of preliminary graining of the stone before coating with asphalt and printing.
(*c*) By means of the production of a grain on chromated gelatine.
(*d*) By the use of a sand blast, which is the chief point of Bartos' process.

All these methods have for their purpose the breaking up of the light tones into regular or irregular but separate points. There are other methods besides those mentioned above which have the same object.

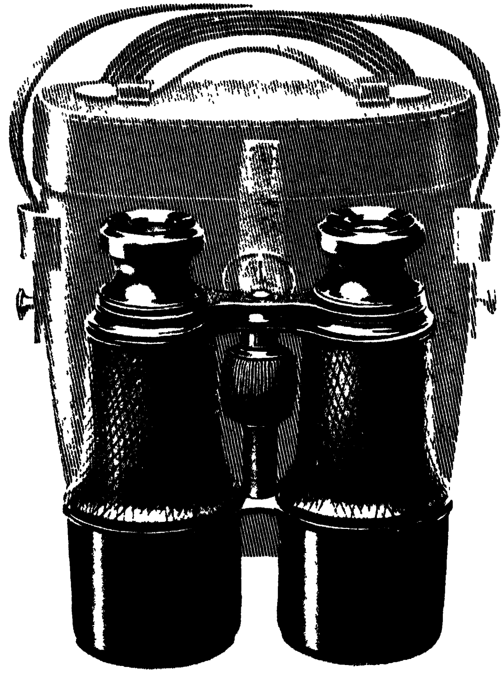


The Lucas Engraving Co., Ltd — W. T. Green, photo

Don't Drink it all, Mate.

"HALF-LINE" ENGRAVING
FOR
EMPHASIZING THE ESSENTIAL.

By OLIVER A. MINNS, F.I.S.A.C., Lond



Carl Hentschel, Ltd

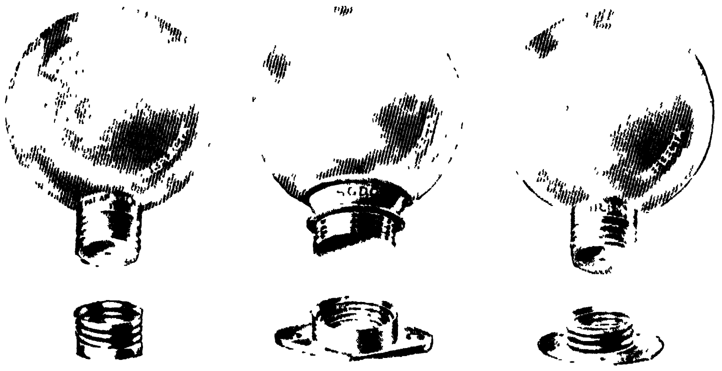
Binoculars, with Case, Reproduced in "Half-Line"

THE merit or value of a given invention especially in the process world lies not so much in its being new, though it may be novel, as in its adaptability and applicability for specific purposes. And in these days of progressive publicity, when advertising pervades all fields of activity, and even Art itself seems scarcely to scorn its adventitious aid, any new method which will enable the Advertiser with the capital A to emphasize the essential feature of his productions to better advantage, is surely acceptable.

It will seem trite to readers of the Process Year Book to be told that we are ever searching for new thoughts and ideas, new schemes, new methods and processes, that will lend aid to advertising and printing generally, or that will advantage any branch of the allied trades individually. But the promotion of publicity and the improvements of the arts and crafts which are called into requisition to assist the vendors of advertisable commodities are praiseworthy aims in themselves as means to desirable ends

Progress in advertising as an art and indeed, according to some, as a science—has admittedly been considerable, even within the past decade. Larger sums are being spent on one form or another by national advertisers, and in so far as the arts of printing and engraving are ready to move forward in the directions in which advertisers seek to progress, so far will the whole circle of combined interests gain.

Hence, when one discovers a new method of producing process engravings suitable for use in catalogues, brochures, folders and illustrated publications, by means of which the essential feature of a particular article can be emphasized without detracting from the effective representation of the whole, one is glad to give it welcome



(A) (B) (C)

Carl Hentschel, Ltd

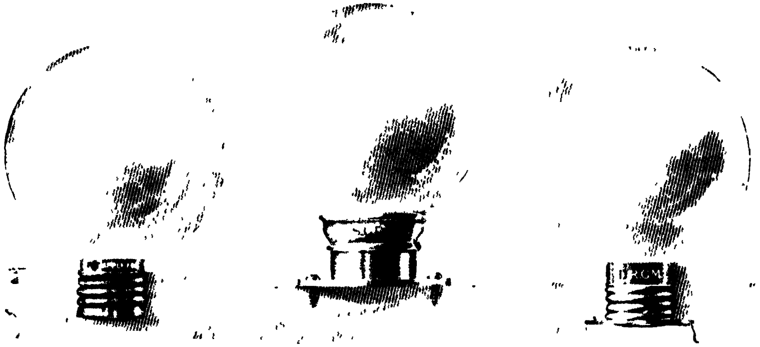
Units Composing "Reflecta" Signs

I am happy, therefore, in bringing to the notice of the discerning circle of readers of the Process Year Book some particulars of the method, and a few illustrations of the effectiveness of what is known to the cognoscenti as Hentschel "Half-Line" blocks. The nomenclature may not convey a precise definition of the beauty and adaptability of this process, but the examples shown, through the courtesy of the engravers and advertisers, to whom I am indebted for the use of the few blocks illustrating this article, cannot fail to awaken a healthy desire in many an advertising man's breast, to emulate the limited coterie of the elect who have thus far appreciated the possibilities of this novel and effective style of illustration.

Without claiming to be the originator of the method in which I sought to secure a very similar result, I was able to obtain almost identically the same effect some twelve or thirteen years ago, by a combination of line and half-tone blocks, and believed then, and may do so still, that I was the first to make use of the idea in an advertisement—for Player's Navy Mixture. But what was looked upon as a "freak" in those days, or certainly a rarity, is occasionally met with now, though the combination is not as commonly used as it might be, with advantage.

In referring to this, I merely do so to show that one may be original without knowing it, and others may be equally entitled to the glory of discovery. But as Emerson says: "Next to being the originator, the merit is to him who makes the discovery known."

The strong point of the Hentschel "Half-Line" process, as already indicated, is that it enables the advertiser to emphasize the essential feature of his goods. By referring to the illustrations of the reflectors on this and opposite pages (which are greatly reduced) it will be noticed that the fittings are brought out in strong half-tone, whereas the spherical knobs and wood bases are subdued. The respective styles of the fittings (A), (B) and (C), are clearly seen, as well as the methods of mounting them, in (D), (E) and (F). In the case of (F) the screwed fitting is shown in position as it is inserted in the stroke of a letter, for the purpose of constructing a sign. Being emphasized, it is readily seen, and by a glance at the component parts (C), the cap is observed attached to the "Reflecta," with the flanged holder separated, as also in (A) and (B), thus indicating the method of fixing into position quite clearly. This would not be so apparent if the fittings had been illustrated by ordinary line or half-tone engraving.

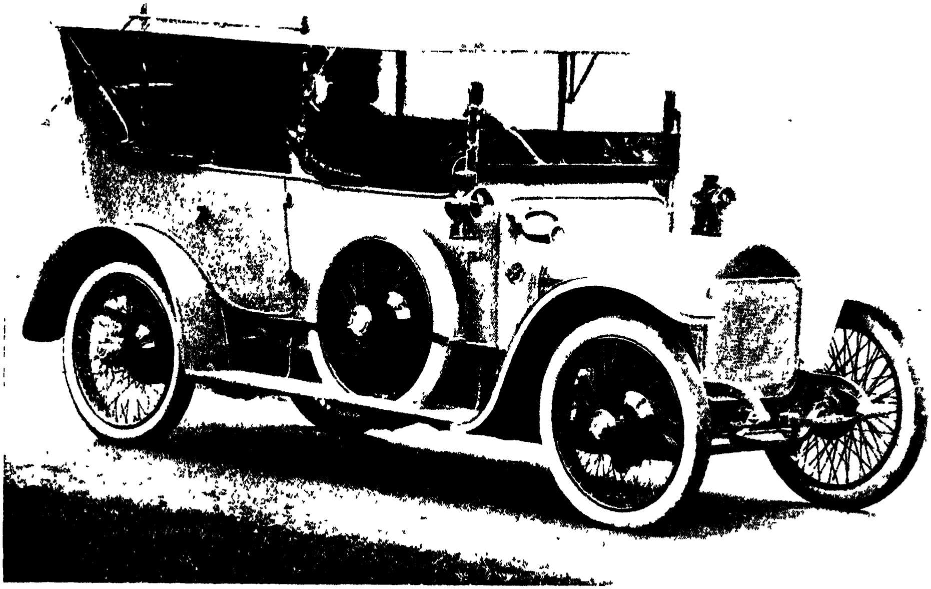


(D) (E) (F)

Carl Hentschel, Ltd. *Courtesy of Reflecta Sign Co., Holborn, E.C.*

Showing Methods of Mounting the Different Forms of Fittings (Emphasized) into Letters

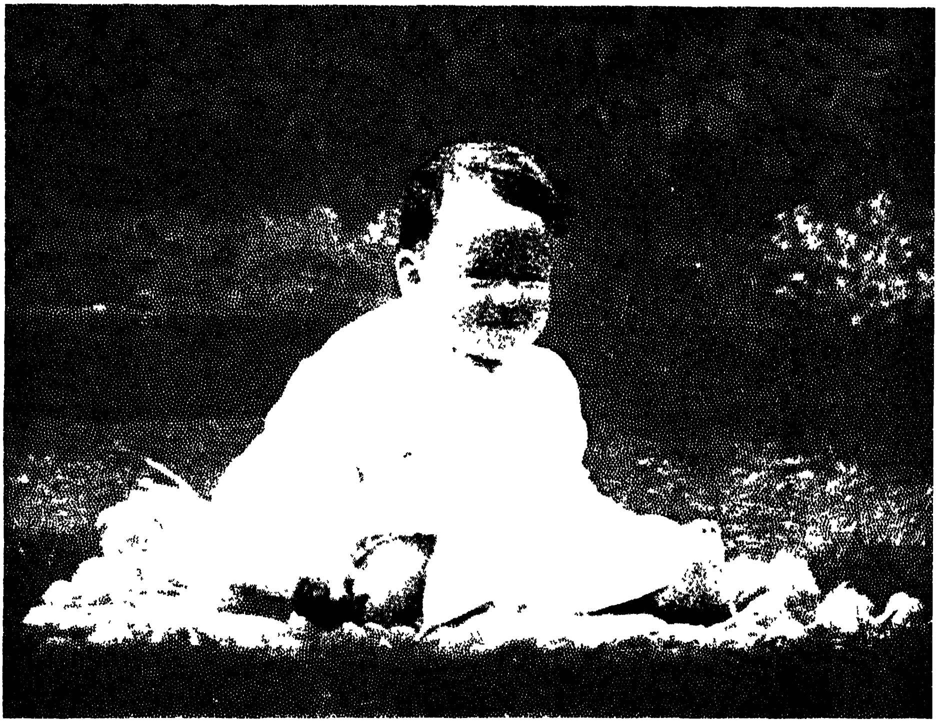
In the first illustration we have a pair of binoculars thrown out in striking relief against the subdued background of the carrying case. Thus the essential feature of the article to be advertised is at once apparent, whereas the case is quite subsidiary. At first glance, the advantage of using the "Half-Line" process for this purpose may not be quite so clear, but on comparing this method of illustrating the field-glasses, or any other similar article in which a case has to be shown also, with say a wood engraving or line block, or even a half-tone of the two articles, it will be seen that the "Half-Line" process is greatly superior as it "throws back" the subsidiary article into another plane.



Carl Hentschel, Ltd.

A Car Illustration

The motor car, shown on page 100, is from a photograph in which the background consisted of elaborate ironwork and pillared entrance gates to a park, partially showing the lodge, with trees beyond, and the whole effect of the photograph was confusing, so much so that the lines of the motor car itself were lost. By treating the block in the way they have done the engravers have eliminated the confusing and intricate



CARL HENTSCHEL, LTD

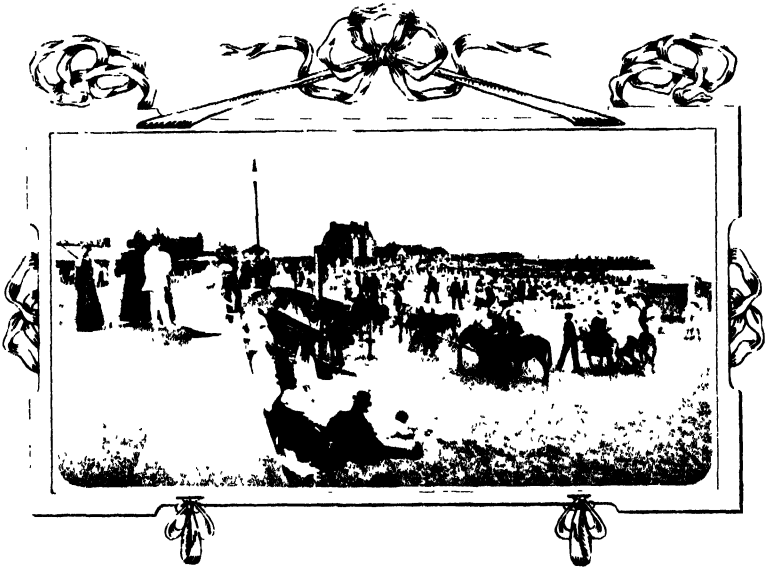
A STIPPLED BACKGROUND

details of the background, and have so lightened it as to create a much more attractive effect than if a vignette had been used, with the total result of throwing up all the lines of the car itself in a more attractive way than could be done by other means

In the illustration of the child, shown on this page, the background has been treated by a mechanical process in such a way as to subdue it without detracting from the picturesque effect, and yet the portrait of the child—the essential feature—has been brought into stronger prominence than would be possible if the photo had been reproduced by ordinary half-tone process.

These few examples are from photos or wash drawings. Almost similar effects can be obtained from line drawings where it is desired to soften, or "throw back" larger masses of colour so as to bring up the essential details of any particular features.

They will serve, however, to suggest many ways in which a wide variety of commercial goods and products can be treated by means of the Hentschel "Half-Line" process, as well as for the illustrated pages, borders and headings of pictorial publications, and I cannot help feeling that Messrs. Carl Hentschel, Ltd., have deserved well of manufacturers and printers, as well as discriminating members of the process world also, in bringing to its present perfection a method which lends itself so admirably to the advertiser's great desideratum of emphasizing the essential.



THE LONDON ETCHING COMPANY, LTD. JAS. E. TYLER, photo

THE BEACH, GORLESTON-ON-SEA

THE ELIMINATION OF MAN.

By JOHN P. GLOVER.

London & Provincial Reproduction Co., Ltd

Hereford Cathedral

"BAD taste, and not a suitable subject for this serious and delectable book of treasures!"

Not so, irate reader; the ensuing tirade is perfectly innocuous, and my little note is merely a reminder that objectionable Man may be removed from the (photographic) arena by the artful operator without the violent use of the ubiquitous hammer.

I once took my way on a sunny day to the noble entrance of a Continental Capitol, intent on recording the exquisite tracery which the artist mason of many years agone had left on the solid granite porticoes, only to find that I had chosen Market day for the venture, and that for no consecutive two seconds was the beautiful subject free from the obstruction of passing apple-women with ponderous skirts and baskets. My vocabulary of French being only enough to keep me out of the clutches of the Gendarmerie, plus a couple of er! forcible phrases, to prevent my being overborne, I sat me adown on my camera bag to meditate, perchance to devise new methods to defeat infortuitous circumstance. And anon I invented a photographic dodge which I have often since employed, and which I have since learned is, as usual, by no means novel, any more than the recent attempts at elimination by the fanatic votaries of the Hammer.

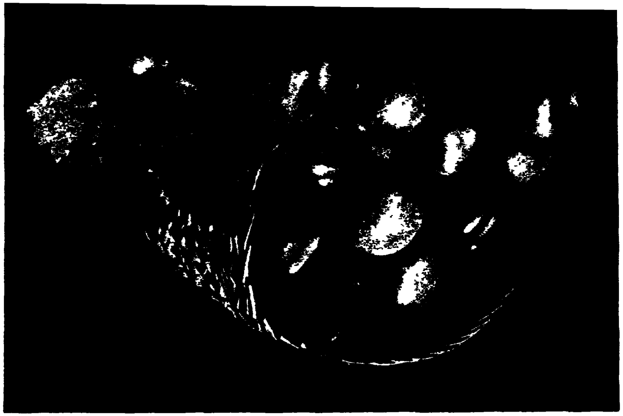
Having carefully focussed my subject, supremely indifferent to the stream of passing bodies between my subject and the lens, I decided that by the (Bee) actinograph I could give a correct exposure of as much as ten seconds, provided I stopped down the lens diaphragm to F/45. I then set the automatic shutter to give exposures by the bulb of ½ second, and simply proceeded to give a series of twenty such exposures at intervals of a few seconds, during which intervals mine enemy, Man (and Woman) had constantly changed its position. On developing that plate I was delighted to find not the slightest trace of any human obstruction, and the detail of the stone tracery perfectly rendered, whilst the exposure proved to be just right.

Since that sunny morning in Belgium I have often used the same dodge with perfect results, and it has since struck me that though the method is not new, it appears to be comparatively unknown, and may very well prove useful some day to the operator whose mind runs on process work.

Many uses of the above dodge will occur to the reader Let me suggest a few from my own experience. Some years ago I spent some hours on a worthy subject (that appearing photographically after page 68 in the Year Book for 1907-08, Vol. 13) After laboriously building a ten foot staging inside the Saxon Church depicted there, I seemed to be "up against" something tough in the form of a huge metal candelabra hanging by a heavy chain from the roof far above. To tie the chain by a cord to the side of the building proved ineffective, since the upper portion of it could not be drawn out of the field of view. The thing weighed, I suppose, several hundredweight, and this mass I simply set swinging pendulum-wise during the whole exposure. I left it swinging when I turned the key in the sacred edifice, and I suppose it will have come to rest by now, but so far as my photograph is concerned, it still swings, since there is no trace of it appearing.

There is a charm about London City during the quiet hours of Sunday. Do you want to record the same? Then place your camera there in a doorway on a busy weekday, use the above described artful dodge, and observe in your negative the annihilation of London's most solid citizens!

Our illustration, of the Cathedral at Hereford, was taken under peculiarly distressing conditions. Owing to some local event, the Cathedral precincts were that day thronged with a strolling line of pedestrians, whilst the pathway shown close to the cathedral walls formed an ordinary thoroughfare. The time at disposal was that between two trains in connection at the adjacent railway station. My camera was therefore quickly erected, ten exposures each one-tenth second were given, and only after development was the texture of the pathway clearly discerned, free from the darkling obsession of the incessant footfall of the tireless passer-by.



THE SENSITOMETRY OF PROCESS PLATES.

By C. E. KENNETH MEES, D.Sc., F.C.S.,
Director of Research Laboratory, Eastman Kodak Company.

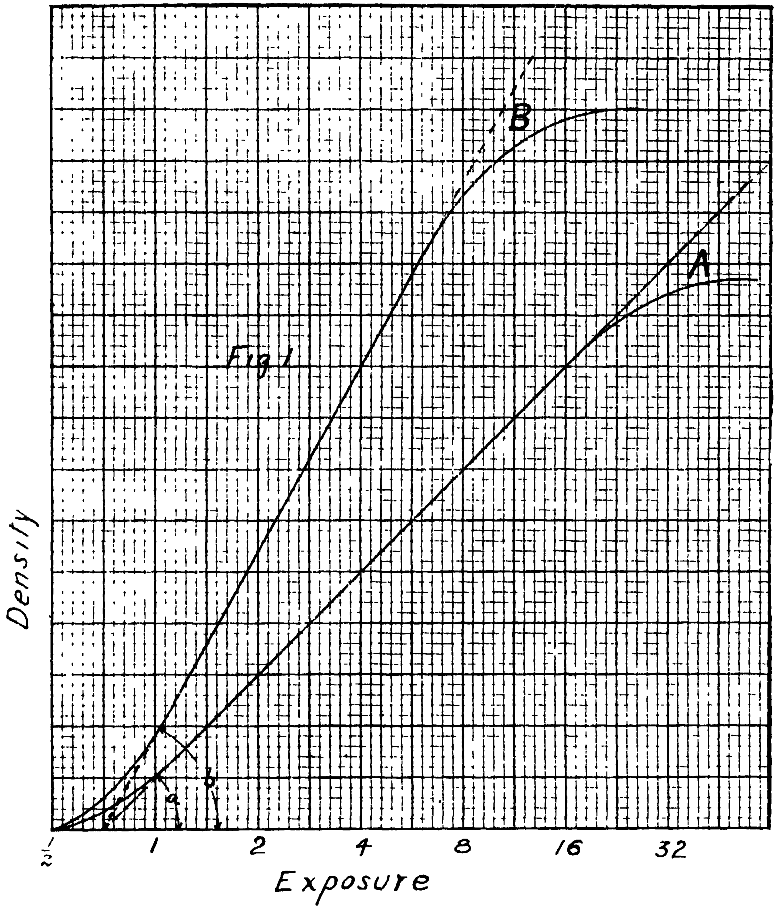
E. HAMEL & Co. ELLIS & WALERY photo

MISS MARIE STUDHOLME

THE system of sensitometry which has been developed for the investigation and classification of photographic products, and especially for the determination of the sensitiveness and gradation of photographic plates, depends upon the relations which exist between the exposure undergone by the plates and the density of the silver deposited by development.

As plates are ordinarily used to render a long scale of light intensities by a similar scale of deposits of silver, the sensitiveness, as usually determined, depends upon the rendering of the middle portion of this scale; and if the sensitiveness is to be read from the density corresponding to a given exposure, the development must also be fixed as that required to produce a correct gradation.

In Fig. 1 curve A has the characteristic form of the curve giving the relation between density and exposure for a plate. At first, the density increases more rapidly than the geometrical increase of exposure, then this period (called the period of under-exposure) changes into a period (called the period of correct exposure) where the density increases arithmetically while the exposure increases geometrically, and then the



density increases less rapidly (in the period of over-exposure) and finally ceases to increase at all.

Now if the plate whose curve is shown at A had been developed two or three times as long we might have obtained the curve shown at B.

In this curve the density corresponding to each exposure is greater than for the A curve, but we cannot say that the plate is "faster," because it is the same plate. Moreover in a negative of a portrait or a landscape the development given to the B plate would have made it useless for printing purposes, it would have been "over-developed." So that, so far as we judge sensitiveness from the density corresponding to a given exposure, we imply that the density is measured for a given development, the amount of development being indicated by the steepness of the straight line portion of the curve.

Thus we may speak of the curve A being developed to the angle *a*, and of the curve B being developed to the angle *b*; this angle will be the measure of the *contrast* of the resulting negatives.

Actually, in sensitometry, the sensitiveness is measured, not by a density, but by the point where the straight lines intersect the exposure scale, so that the sensitiveness (or rather the insensitiveness) of this plate might be called about $\frac{7}{10}$ in the exposure units we have chosen. And this sensitiveness is proportional to the density which is obtained with a fixed exposure, and with a fixed development giving a certain definite contrast, but is itself independent of the amount of development, both the A and B curves giving the same result.

It will thus be seen that the whole idea of *sensitiveness* as used for photographic plates, is bound up with that of the correct rendering of a range of gradation. But when we turn from landscape and portrait photography to process work there is no scale of gradation to render at all; there are only two tones in a good process negative, clear glass and absolutely opaque deposits.

In half-tone negatives the gradation is rendered by various *sizes* of dots and not by various densities, and the negative again contains only two tones, clear glass and opaque deposits. This being so a plate which will give the necessary opacity to the high-lights of a line negative or the dots of a half-tone negative with less exposure than another plate is effectively faster, without regard to any question of gradation. Or, to put the matter in another way, if two plates have straight line portions to their curves which meet the exposure axis at the same point and one can be developed to give more contrast than the other, then the plate which gives greater contrast is effectively faster when used as a process plate.*

Thus in figure 2 we have represented the straight line portion of the two plates A and B, meeting the exposure scale at the same point and therefore of the same H and D speed, but while A can be developed only to the angle *a*, B can be developed to the angle *b* Now suppose we represent the density required in the opaque parts of a process negative by a horizontal line MN, then we see that while plate A requires 16 units of exposure to give this density, plate B requires only 4 units.

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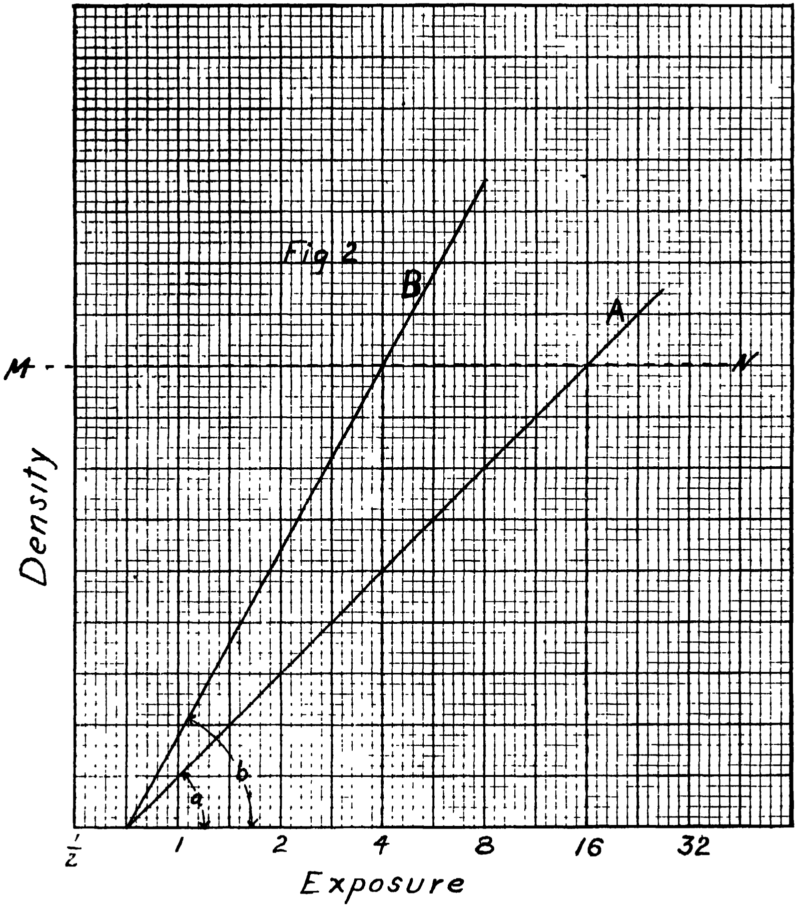
*To put the above in the usual language of sensitometry suppose we have two plates having the same inertias and maximum developing factors $\gamma\infty_1$, $\gamma\infty_2$.

Then D $\gamma\infty_1 \log E_1$ and $\log E_1$ $\gamma\infty_2$
and D $\gamma\infty_2 \log E_2$ $\log E_2$ $\gamma\infty_1$
$\gamma\infty_1 \log E_1$ $\gamma\infty_2 \log E_2$



In other respects the plate giving the greater contrast is better for use as a process plate; it will give clearer lines in line work, and less

" fluff " between the dots, but the point that I wish to emphasize here is that " H and D " readings of speed, which depend on gradation, are not valid for process work, if plates having different maximum contrasts are being considered from the standpoint of density-giving power.

But turning again to the photography of a line copy it may be worth while to consider what the exposure should be, and how much density we may expect to get, on an unintensified dry plate negative.

If we are to get clear lines the maximum exposure which we may give is that which will just *not* produce a deposit on the lines.

The amount of exposure which will just produce a visible exposure, on a plate, is usually taken to be about half the exposure corresponding to the point where the straight line reaches the exposure scale. That point is called the " inertia " of the plate and can be found from the " Watkins " speed of the plate by dividing it into 50. So that if the " Watkins " speed is 100, the inertia is $\frac{50}{100}$ or $\frac{1}{2}$.

The exposure which we should give to the *lines* would then be $\frac{1}{4}$ on that scale, the $\frac{1}{4}$ representing the strength of the light reflected from the lines and entering the camera to form the image on the plate.

Now if we make our drawing on Bristol board in Indian ink, the line will reflect about $\frac{1}{20}$th of the light reflected from the white Bristol board so that if the light in the lines is $\frac{1}{4}$ unit, that forming the high-light of the deposit will be twenty times as much, or 5 units, which is ten times the " inertia."

Now the contrast of a plate is measured as the density corresponding to an exposure of ten times the " inertia," so that *the density which we may expect to get in the high-lights of a line job on a dry plate is numerically equal to the maximum contrast which the plate will give it if the plate is given the maximum possible exposure.*

Owing to the use of intensification the density necessary is not very high and therefore in process work an exposure much less than the one calculated above will usually be given, this having the advantage that weak or grey lines will still remain clear.

We see therefore that if the maximum contrast is low, the exposure is governed by the *maximum* exposure which can be given if the dark areas of the copy are to be rendered as clear glass in the negative, and since that maximum exposure is proportional to the inertia, the rated " H and D " sensitiveness holds. If, however, the maximum contrast is high, the exposure is governed by the *minimum* exposure necessary to get sufficient density in the opaque areas, which is settled by the maximum contrast obtainable and then the " H and D " sensitiveness no longer holds.

INVENTOR OF ROTARY PHOTOGRAVURE.

By S. H. HORGAN, New York.

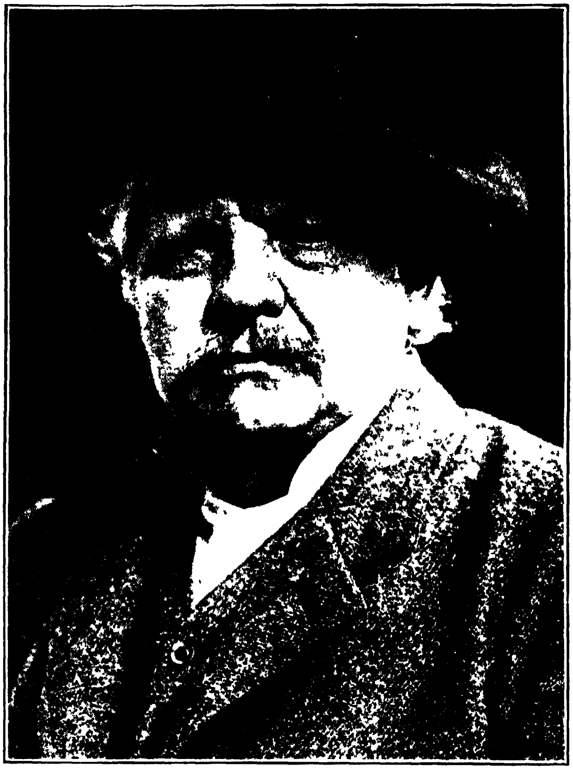
IN reply to your request for a contribution to this year's Annual it may seem like "sending coal to Newcastle" to forward from the United States a portrait and feeble tribute to one who, by his work in England, has done so much to raise process work to its proper place among the Graphic Arts.

We in America observe your workers with a telescopic camera, as it were, and are more likely to focus on an individual than you who have the privilege of mixing among them and observing the whole group. And so it is, to us, that the one who stands out strongest among the process workers of England is he to whom most credit is due for the marvellous art productions of the Rembrandt Intaglio Printing Co., of Lancaster.

Mr. Karl Klic, we on this side of the ocean understand, is the one who met the problems and overcame them so that photogravures are printed by power and mechanically instead of by manual labour and with personal attention to the inking and wiping of the plate. As this improvement means that photogravures are eventually to be printed in quantity cheaply and thus bring real art reproductions into the possession of those able to buy newspapers, it seems unfortunate that it was necessary to keep the method a secret, in order that those who supplied the money to pursue the costly experiments should get just reward for their enterprise.

It was inevitable, under the circumstances, that some of those who learned some part of the secret of rotary photogravure should come to America and try to turn their knowledge into dollars. At least one dozen such men have arrived here and but one of them has been successful in interesting capital, while if Karl Klic himself had visited this country with the purpose of establishing rotary photogravure he would have secured all the capital he would have needed. In process work originals always give better results than copies. At present rotary photogravure is entered into here in a timid and experimental manner without giving the financial results the importance of the process should ensure.

In this land, too, where business has, at least in the past, depended so much on government protection the man with a patent of any kind behind his process has always stood a better chance of being rewarded than one with a secret process, no matter how valuable the latter might be And so it is in this matter of rotary photogravure, those with alleged patent rights have secured capital which Karl Klic, or the company behind him, might have had when he first perfected his method As it



KARL KLIC

is, it is very difficult to find over here any Rembrandt Intaglio prints in colour without much searching and then at a prohibitive price

Little is known about Mr Klic here In brief it is this He was born in the town of Arnau, Bohemia on May 31st, 1841 His father was a chemist and saw to it that young Karl got a good liberal education, as well as a technical one. Later he was sent to the Academy of Painting at Prague to receive an art training. Then his father established him a photographic studio at Brunn. His art aspirations made pictur making with a camera seem too tame for him, so he went to Pesth as designer and later to Vienna as a caricaturist.

It will be seen that Karl Klic's early training fitted him admirab for the great work he accomplished in photogravure later. And fro his portrait one can judge that he possessed the strength, determinati and artistic perception to accomplish just what he has done. His fir improvement in photogravure was to lay the grain ground direct up the copper plate and over it a carbon positive through which the etchi was done. He described his method in 1879 and taught it to Vict Angerer, who used it on a large scale in Vienna. Mr. Blechinge Angerer's son-in-law, a copper etcher and painter, improved the proce and in 1893 produced photogravures in colour.

It was sometime in the nineties that Mr. Klic went to England a worked in great secrecy while prints in colour bearing the impri "Rembrandt" appeared and interested the whole art world. H "Hundred Best Pictures" and the reproductions of paintings in t Royal collections are better known in Europe than here. At the a of three score and ten he retired to his native country to enj the rest he has so well earned and the good wishes of art lovers the wor around.

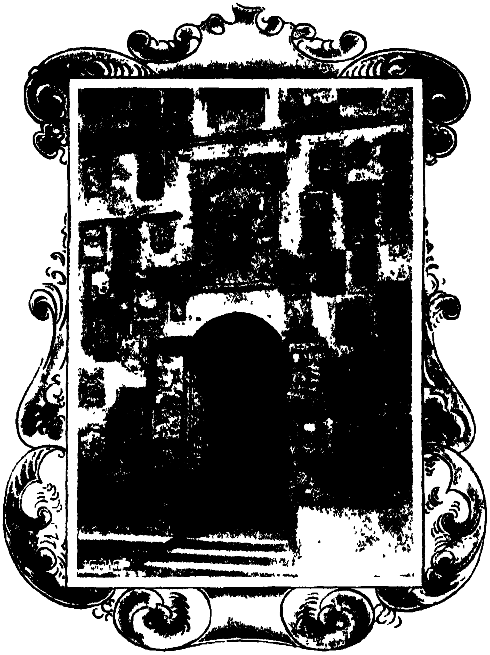
The Irish Photo Engraving Co — Ellis & Walery, photo.

The Big Oak, Burnham

ANN HATHAWAY'S COTTAGE, STRATFORD-ON-AVON.
SPECIMEN OF COLLOGRAVURE PRINTING
BY
THE LONDON STEREOSCOPIC COMPANY, Ltd.,

THE SYSTEM OF MULTIPLE PHOTOGRAPHY AND AUTOMATIC FOCUSSING.

By ARTHUR FRUWIRTH.



E. HAMEL & CO. ERNEST MARRIAGE, F.R.P.S., photo.

THE OLD PALACE, AREZZO

IN former editions of this YEAR BOOK I have described a simple way of Automatic Focussing by scales based on the well-known law of conjugate foci. I am in a position to day to record a further improvement of the system. The universally applied trick of blocking out one half of the camera space by a sheet of black cardboard, exposing one side and after refocussing the other side has been made the starting point for a system of multiple photography, which in connection with the automatic focussing scales increases the possibilities of speedy work in a remarkable way.

Into the rear frame of the camera, as close to the plate-holder as possible, is built a sectional shutter made of thin black sheet metal. Each quarter section shuts out one-fourth of the available camera space and is operated independently from each other by levers from the outside. The upper two sections are hinged to a metal rod close to the top of the camera and outside of the direct path of the light rays. Similarly the lower two sections swing on a rod close to the bottom of the camera as illustrated in diagram 1. In order to shut out all light, which would creep in between the upper or lower sections, a narrow flap has been introduced, which slightly overlaps the

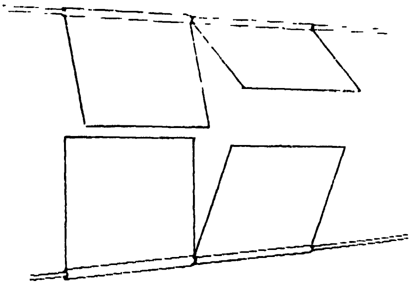


Diagram 1

adjoining edges of the shutters and rises mechanically when the shutter is raised (see diagram 2).

Any two, three or four copies, of whatever reduction or enlargement within the capacity of the camera, can be taken on one and the same

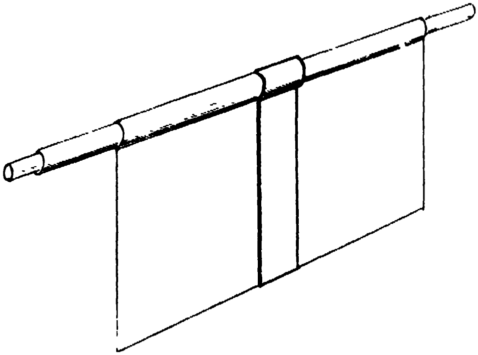


Diagram 2

plate. We may make double exposures by arranging two copies above and below the horizontal dividing line of the copyboard (diagram 3) or triple shots as in diagram 4, or finally quadruple shots (diagram 5). Or we may expose any number of copies in one focus on three sections of the plate (diagram 6), and another copy at a different reduction on the remaining fourth section.

But also in case of simultaneous exposures on two or more copies of widely differing colour and tone values, the multiple device is of material help, as by its means the exposure on the lightest copy may

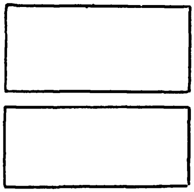


Diagram 3

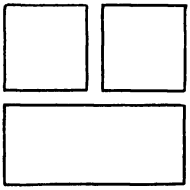


Diagram 4

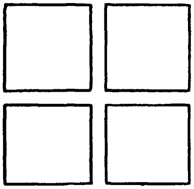


Diagram 5

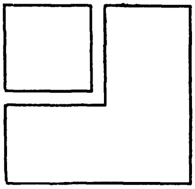


Diagram 6

be interrupted at the proper time, while continuing that on the darker copies

Any fear of wet plates drying up during a quadruple exposure is absolutely groundless Using a pair of arc lamps of 25 or even 10 ampères and 110 volts and a developer of 35 to 40 hydrometer test, the average exposure on the general run of orders is below two minutes for half-tones and goes often as low as thirty or forty-five seconds Taking thirty to fifty seconds for resetting the focus, changing screen separation, working the shutter and perhaps readjusting the arc lamps, we have a total exposure of less than ten minutes, even under unfavourable circumstances

Equally unfounded is the objection that copies cannot be centred with a sufficient degree of exactness for multiple exposures It is only a matter of determining once for ever the true optical axis of the copying apparatus Very few operators can do it more than approximately. Sticking the lens on, drawing two diagonals on the ground glass and marking that point on the copy board which corresponds with the centre of the matt frame will never do In nine out of ten cases, that point will refuse to remain stationary with the different rates of reduction or enlargement.

Finally the question of complexity is apt to militate against the practical adoption of the multiple-exposure system. Much may be said for and against it. The man who is not sure of his exposures, the operator who battles continually with his chemicals and cannot get them to work properly, the worker who "does not care," fare but ill. The ambitious one will learn a lesson and learn it well. No book will teach him as impressively as multiple exposures, the variations of light intensities at different ratios of reduction or enlargement or at different distances or angles of the arc lamps. But beyond this everything is smooth sailing. Once accustomed to setting the shutters and foremost adhering religiously to an adopted rotation in which the different exposures are made, failures due to oversight or confusion become extremely rare. The clue to success remains with multiple shots what it is with single ones the correct timing of the negatives. This can be done just as deliberately and judiciously with two, three or four exposures on one plate as single exposures on two, three or four plates.

London & Provincial Reproduction Co Ltd. W. Ferrier Pinkney, photo.

Afternoon Tea

IMPROVEMENTS IN METZOGRAPH NEGATIVE MAKING.

By R. B FISHENDEN, F.R.P.S.,
The School of Technology, Manchester.

IN the course of a series of experiments on "high-light" processes at The School of Technology, Manchester, it was found that the usual procedure involved in metzograph negative making is capable of important modifications, the altered method of working producing results which considerably increase the utility of the screen.

If metzograph negatives are prepared by the standard methods given in a previous volume of the PROCESS YEAR BOOK,* it is not possible to alter the range of gradation to any appreciable extent, without destroying the delicacy of the results. Within certain narrow limits and with a constant screen distance, a larger lens aperture than F/32 gives a brighter negative than the normal, and a smaller aperture a softer one, this variation, however, is only sufficient to modify the differences found in the average originals from which printing blocks are required to be prepared. The enhanced brilliance which is the result of extra intensification is not to be recommended, because of the mealy character of the result.

The importance of using the correct screen distance in metzograph negative making cannot be too strongly impressed; the characteristic net-like grain gives a smooth result which is entirely free from mealiness, and this can be produced only with one definite screen distance for any given screen and camera extension. It has been suggested to vary the screen distance from the normal, in order that the length of the scale of gradation may be varied, an increased screen distance increasing the range and making the grain more coarse, this practice is to be avoided, because it destroys the character of the metzograph grain and produces an unsatisfactory effect, similar to that obtained when irregular opaque grain screens are used.

It is possible to produce a satisfactory "full range" or "high-light" metzograph result by the method of preparing a metzograph transparency from a continuous-tone negative and then making a fresh negative from the transparency by contact; a Vandyck print may be made from the transparency, thereby avoiding the making of a fresh negative, but this requires considerable care for subjects of a fine grain.*

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* Negative making with the Metzograph Screen. R. B. Fishenden. Process Year Book, Vol 14, p 201.

[A booklet giving full instructions in the use of Metzograph Screens is issued gratis by Penrose & Co.—Ed., P. Y. B.]

The method of working which it is the purpose of this article to suggest, consists of exposing the sensitive plate in the camera with the screen in the usual manner and then, after replacing the screen by a piece of plate glass of equal thickness, giving a supplementary exposure with the same aperture, the duration being determined by the character of the result it is desired to obtain.

The use of a supplementary exposure is found to possess the following advantages:

1. If fine screens are being used (numbers 2, 3 and 4) an extra exposure through the plain glass of from one-twelfth to one-eighth the exposure with the screen gives a considerable improvement in the resulting negative, without interfering with the quality of the grain; this is of importance if an etched block is required. A comparison of the prints produced from two negatives, one made in the usual way and the other in the manner described, is markedly in favour of the latter; the delicacy of the lighter tones and the richness of the shadows are both enhanced, producing the effect of careful fine-etching.

2. The use of coarse grain screens (numbers 00, 0 and 1) for the preparation of blocks is difficult in the usual method of working, because of the low resolving power, or capacity to render fine detail; this is especially noticeable in the coarsest screens, numbers 00 and 0. The supplementary exposure improves the definition and the crispness of the result in a manner which will greatly extend the usefulness of the screens for coarse grain block work; this will apply to an even greater extent for photo-lithography in monochrome and colour, for which latter purpose the coarse screens are extensively used.

3. High-light effects are necessary in the preparation of blocks if the background is to be deep-etched, the laborious method of painting-out on the plate being both costly and unsatisfactory. In photo-lithography and chromo photo-lithography also, the range and brilliance of the results must be capable of any modifications the particular circumstances may demand. For the purpose of obtaining a "high-light" effect the length of the supplementary exposure is increased to as much as one-fourth the exposure with the screen. The effect will be to produce a distinct veiling of the lighter tones and a few trials should be made and printed on the metal to show the operator the character of negative required. If all the details of the subject are to be preserved

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* Photo-Chromo Lithography — R. B. Fishenden
Process Year Book, Vol 18, p. 263

the negative should be only slightly veiled and no attempt must be made to make the lighter tones quite opaque.

The supplementary exposure must be made with the screen replaced by a piece of plate glass of the same thickness as the screen. If the extra exposure were made without the glass, there would be two images on the negative of different size the image from the screen exposure being slightly smaller than the other, because of the refractive effect of the glass of the screen.

The actual method of working is simple, but it must be systematic, or uniform results cannot be obtained. No difficulty will be found in obtaining register between the two exposures, if reasonable care is exercised and if the dark slide fits on the usual conical pins on the bottom of the back frame of the camera.

Satisfactory results are obtainable on process plates, panchromatic process plates, or by the wet-collodion process. The development of dry plates for a definite time at a standard temperature is at length being recognised by process operators as being of the utmost importance for obtaining uniform results. The author finds that the development of wet-plates by time is quite possible and is of great advantage when it is desired to produce comparative results, or if the operator lacks the necessary experience to judge when development is complete. In metzograph work with the supplementary exposure, it is not possible to determine, by visual examination, the moment at which development should be stopped, and the least variation will make a great difference in the amount of veil on the lighter tones of the finished negative. It is desirable that the negatives should be developed for a constant period of twenty seconds, using a normal half-tone developer of the following concentration: ferrous sulphate, 50 parts; glacial acetic acid, 25 parts; water, 1000 parts ; should any modification be required and a subsequent exposure made, it will not be found difficult to obtain the exact alteration which is necessary, if the development is under control.

The most perfect half-tone negatives are those which have been correctly exposed and therefore do not require elaborate after processes to produce printable results. In all kinds of "high-light" work and the processes herein described, correct exposure is of the utmost importance and the best work will be obtained if the negatives are merely intensified with copper bromide and silver nitrate. Slight over-exposure may be corrected by reduction before intensification, but the practice of bleaching in iodine in potassium iodide, reducing in potassium cyanide and afterwards blackening by a soluble sulphide, is not recommended.

It would be possible to obtain a similar effect for pure "high-light" work by making the supplementary exposure on a separate negative and printing the two in register, using a distant arc lamp (or other device for obtaining parallel light rays), as the illuminant. The results produced by the short extra exposure (one-twelfth to one-eighth the screen exposure) cannot be obtained except in the manner described. The slight extra exposure alone is not enough to produce a pronounced developable image, but it is sufficient to augment the exposed grain image, causing the previously weak portions of the grain to acquire sufficient opacity to print ; the superior crispness of the results produced by this method is due to the supplementary exposure not being subjected to the irregular refraction at the etched surface of the screen, which, although of little significance in the case of the finer screens, is of great importance when the coarser ones are being used.

It should be remarked that " high-light " negatives with the ruled screen may be made in the manner stated above, the results being superior to those obtained by racking the screen away from the plate, increasing the diameter of the lens aperture, or similar devices for obtaining the " high-light " effect The usual methods mentioned give a disturbance of the definition, the amount of which depends on the optical perfection of the lens or the distance the screen is racked away from the plate ; the substitution of the plain glass for the ruled screen and the use of a normal lens aperture for the supplementary or " high-light " exposure, avoids any disturbance of the definition.

The effect of a short supplementary exposure in ordinary half-tone work, using a plain glass in place of the ruled screen, has been the subject of experiment by the author, but comparative results are not available at the time of writing this article ; the further consideration of this subject is therefore postponed.¶

[We have examined the proofs submitted by Mr. Fishenden and we can testify that a wonderful increase in brilliancy has been obtained by the method described. The " high-light " effect which can be secured in this way makes the process invaluable for colour plates. Again, in using a coarse screen we notice that there is markedly better definition and crisper result obtained by the supplementary exposure. These results seem to show that there is much to be done with the metzograph screen if operators would only study to acquire the best ways of handling it.—Ed., P.Y.B.]

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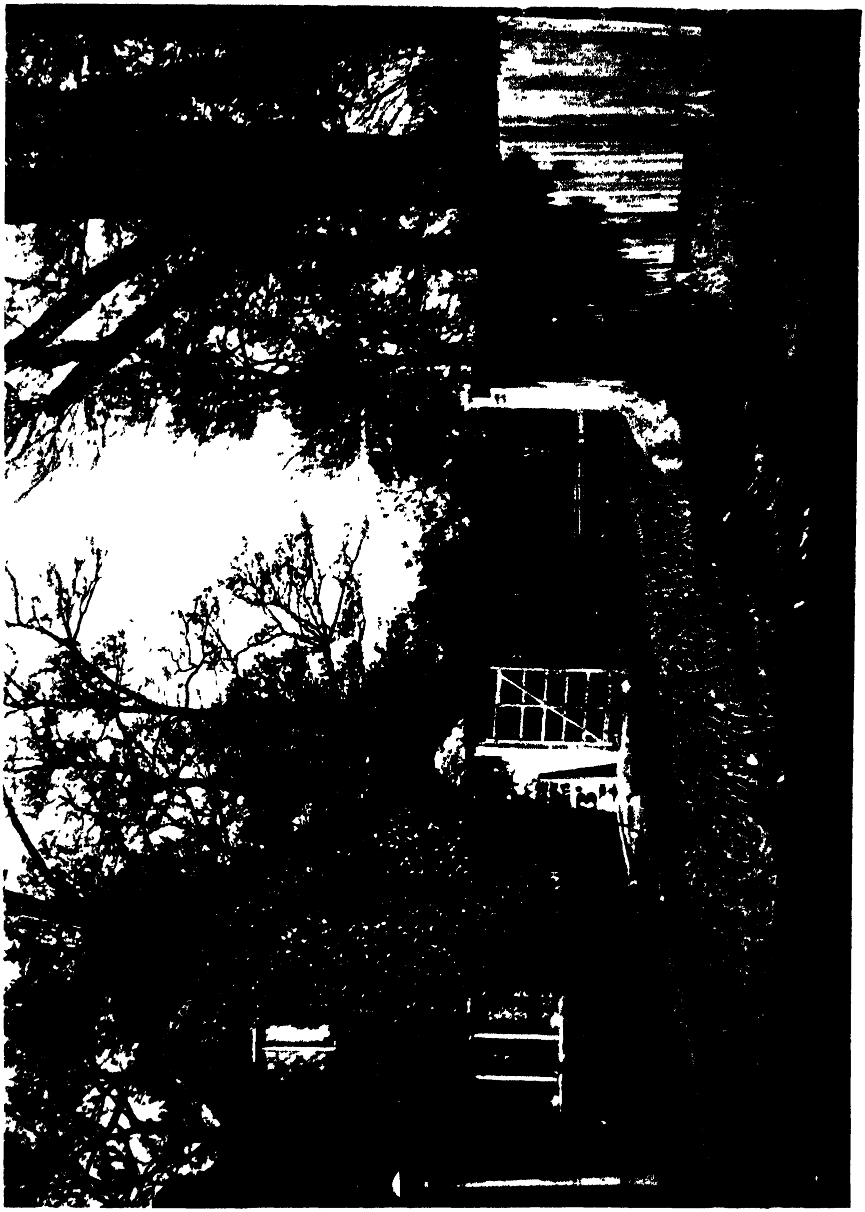


MULTICOLOUR PRINTING FROM REVERSED NEGATIVES.

By EDWIN T. BUTLER.

GARRATT & ATKINSON.

IN a single-exposure tricolour camera, which takes two images by reflection and one by direct light, the reflected images are reversed, the right side of the subject being on the left of the printing surfaces when the images are viewed through the backs of the negative glasses, or to put it in a different way, the reflected images are on the wrong sides of the negatives, for printing, when the printing is done from the film sides of the negatives.

This could be avoided by taking the reflected images in the camera through the back or glass sides of the sensitive plates.

The reason why it is considered preferable to take all the images with their films facing towards the lens as in the ordinary way will be gone into later.

Having obtained a set of multicolour negatives, taken in the camera in each case with the film sides facing towards the lens, two of these (reflected images) will be reversed and in opposition to the one (the direct image) unreversed.

These may be printed from, as may be desired, with the printed images facing either in the unreversed or reversed direction without any sacrifice of register or sharpness, and in such a way as to suit any of the different printing requirements.

In printing multicolour transparencies

One image may be made to face the other two so that the printed images may be together between the two outside glasses.

Or as they are required in printing by the collotype method—all the images may be printed reversed. Or again, as in ordinary printing, when the printed images are required to be all facing one way (unreversed).

Precautions necessary to be observed: (a) in reversing the images of negatives so as not to alter the relative size of the images; (b) or again, as in ordinary printing when the printed images are required to be all facing one way, unreversed.

The following precautions are necessary in reversing the images of negatives so as not to alter the relative size of the images.

When printing in a transparency camera or a fixed enlarger:

First place over the film of each negative a piece of plain negative glass of the same thickness as the negatives (it need not be attached), the film of each negative will thus be enclosed between glasses of equal thickness and they may be printed from—from either side when the rays are made to pass through equal thicknesses of glass to each image, and the film image will in this way be placed at an equal distance from the lens.

Simple as is this precaution the omission of it will cause unequal size and focus. If, for instance, the film side of one negative is placed face to lens, close up to the rebate in the printing camera and the back of the reversed negatives, those taken by reflection, placed towards the lens close up to the rebate, then the reflection negative prints will be smaller than the direct negative prints, those images being in this way further away from the lens by the thickness of the negative glass as compared with the direct image.

All then that need concern the printer when he desires the multicolour images of the prints to face one way, after covering the negative films with plain glass is to see that the negative images are placed in the printing camera all the same way as to right and left and top and bottom.

If the negatives are not so placed in the printing camera lack of register might be caused, though the negatives themselves may be perfectly in register, through the defect in the construction of that instrument, such as when the sides and top and bottom are not exactly equal, but when all are placed in the same way any slight distortion resulting from such defect in the printing instrument would affect the same portion of each colour image equally and would not be appreciable in the completed print.

PRINTING BY CONTACT.

Printing through the back of negatives placed in contact with sensitive plates causes loss of sharpness unless precautions are observed.

This fault may be avoided by parallelizing the rays and this may be done by the use of a condenser

Mr. E. G. Handel Lucas successfully uses a condenser and lantern in his "Handeltype" method of printing, when printing by contact from multicolour negatives, some of which in each set are reversed and consequently have to be printed through the back of the negative glass.

In a single-exposure tricolour camera, to take all three negatives with the images facing the same direction —

Putting aside certain objections, this can be done, though two negatives of the set are taken by reflection and one by direct light.

It is necessary in this case to take the two reflected images through the back of the sensitive plate, when all the negatives are required to be unreversed. When all three negatives are required to be reversed it is only necessary to take the direct image through the back of the sensitive plate.

The reasons why this way of taking is not recommended are:

First. The backs of the sensitive plates require to be well cleaned. This however may be done by a damp pledget of cotton wool on a damp cloth and afterwards the glass polished with tissue paper.

Second. It is at the risk of a slight difference in size due to possible curvature in the glass of the sensitive plate.

When such curvature exists it is mostly concave on the film side.

Third. It is also to be remembered when putting the plates in the slides and when taking them out for development that the film side of the direct negative being uppermost in the slide, the film sides of the others are down.

If, notwithstanding these objections, it be desired to take the negatives in this way, the camera can be adjusted by special arrangement for this purpose, or, when adjusted otherwise, the user can make a temporary adjustment, which will enable him to take the negatives facing one way in the following manner.

It can be done by placing a plain glass of suitable thickness and of true surface next to and in contact with each of the two top reflection screens (being careful to bind the edges to avoid fogging) and by reversing the sensitive plates which receive the reflected rays so that they are taken through the back.

In such a case the added glass would require to be ⅛″ in thickness to compensate for the different position of the film being at the back of the sensitive plate and the focussing could be done at the end by observing the direct image.

When the camera is provided with slides that will hold two plates and it is desired to photograph one or two of the set through the glass, this end may be secured in another way and the distance and focus of the films of the several negatives equalized in the following manner, *viz.*, by placing a plate of ordinary negative glass of average thickness (about 1/16th of inch) before the films of those of the set which are photographed film side to lens. In such a case the lens would have to be racked in 1/20th inch after focussing

MODERN LITHOGRAPHY.

By JOSEPH GOODMAN

(Honours, Silver and Bronze Medallist in Lithography and Photo-Mechanical Processes).

What a triple combination of (a) the "Printex Photo-Multiple Transferring Method"; (b) the "Frey Chromo-Litho Process"; and (c) "The Hayes All-Rotary Tubular Process" could accomplish for the Lithographic Craft.

BENN & CRONIN, LTD   R. BRAID, photo

THE whole world of modern printerdom, and the manifold allied trades that cater to its many extensive requirements, are to-day studiously contemplating the marvellous mechanical inventions and scientific developments which have, during the past six or seven years, been ushered exclusively into the domain of lithography.

These various craft endowments have impregnated and infused into the lithographic trade so many new and invigorating powers of efficiency and progress, that we need only collate and coalesce three of the most important of them, to realize how powerful and invincible this premier art craft of colour printing has now become.

A triple alliance, as suggested above, represents the three basic states of the craft, the first phase being the *production of the photographic colour image*, by means of the Frey screenless method; the second, that of the *photographic transferring of the printing surface*, by means of the Printex process; and finally, the *actual printing of these* by means of the Hayes reel-fed, simultaneous multicolour lithographic printing process.

This combination would mark the invulnerable summit limit of economic colour printing methods according to modern conception, and open up the immediate possibility of a new range of colour work of a very high order of merit.

As the "Printex" process is the last in the field of these new methods, a few particulars depicting the technical achievements, and scope of this process, will be appreciated by those who have not had the opportunity to become more closely acquainted with it.

It may be explained that, by this "Printex" process, any number of original transfers can be automatically produced by photography upon a machine printing plate, for utilization in unlimited productive printing purposes; each of these transfers being actually as sharp and crisp as the original from which they were made; whilst by virtue of the photographic basis of the transferring operations, the stability and longevity of the work upon the printing plate or cylinder, is more invulnerable than that produced by hand transfer methods

This then implies that the photographic image upon the plate lasts longer in working, and is proof against rougher treatment, than when otherwise produced by more ancient and cruder methods

In the most difficult and important phases of transfer work; such as the all-over patterns and designs as utilized in wall paper, linoleum and book cover end-papers, as well as in textile fabric printing, which require mathematical repetition and precision in the joining up, here the autonomy of this process removes all possibility of error, and affords perfect results, outclassing any of the preceding methods connected with this range of work.

In the case of a mishap during printing, a repeat transfer of any of this work can be prepared at any subsequent time, the unique facilities of the process enabling a new plate to be produced, bearing the complete printing image upon it, in the remarkably short space of half an hour.

Modus Operandi.

First a negative is made of the copy that has to be reproduced. From this a transparency (diapositive) is made by contact.

This positive is then affixed in a special machine, known as the "Step and Repeat" Camera. The mechanism in this apparatus is wonderfully articulate and precise.

The focussing for correct size and position is done through this positive upon the ground glass screen at the front of this repeat camera.

Afterwards the focussing screen is removed and a sensitive photographic plate inserted in its stead.

The first exposure of the unit image is made upon the left-hand upper portion of the plate, then by revolving a controlling wheel a given number of turns, everything is ready for a second " step " exposure, to be made upon the next adjoining portion of the sensitive plate; and so on by repeated " steps " and " exposures " right along this top strip of the plate

When this is completed another wheel is operated, which brings the next successive linear area of the plate into position for the second line " step " and " repeat " procedure; and so on until the whole plate is covered with the prearranged number of repeat images which it has to receive to complete the negative

It is next developed and fixed, and is then ready for placing upon an albumenized sensitive zinc or aluminium plate, for the production of the actual printing surface required for the machine.

After the final lithographic etching operations, etc., the plate is ready for printing from.

If the lithographic printing surface should be a *rigid tubular one*, instead of being a loose flat plate, here this Company have devised a special piece of machinery to negotiate this, which is designed to work to a micrometer nicety of precision.

In structure, this machine has the outward appearance of an ordinary flat-bed lithographic machine Concisely, it possesses a cylinder clothed with a three-ply rubber blanket and an iron bed for holding the zinc plate carrying the transfers, prepared through the agency of the " step " and " repeat " machine

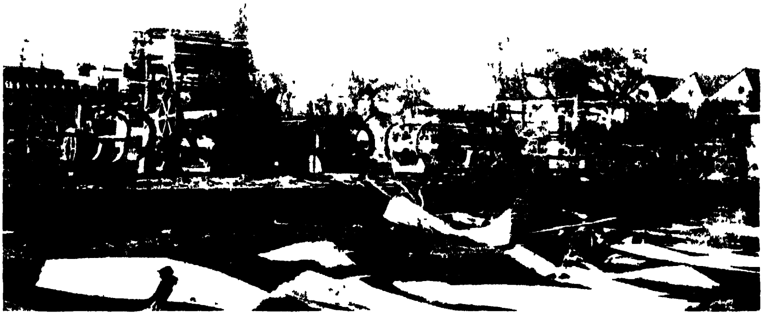
The work upon this plate is inked-up with re-transfer ink, and then an ink transfer from this plate is made upon the rubber-clothed cylinder. The clean tubular printing surface has been previously affixed into journals connected up with the rubber surfaced cylinder

Then by means of a lever motion, this metallic printing tube is brought down into the correct contact position upon the rubber, and the transfer thus made upon it.

Now we approach the explanation of a remarkable feature of this machine As these different tubes may vary up to perhaps a quarter of an inch in circumference, this difficulty has had to be negotiated in the construction It is accomplished by having a duplex gear fitment made upon the carriage and cylinder, so that the carriage can be made to either travel a fraction *slower or faster* than the cylinder to accord with the exact diameter of the printing tube.

It must be explained that this is done by throwing the finer gear slightly out of the parallel direction Thus, if a transfer plate has an image upon it which measures 20 in and the circumference of the cylinder is only 19¾ in., then this quarter of an inch is by this device absorbed in the retardation of the travel of the carriage And so on for the inverse condition, when it would be made to gain a quarter of an inch creep in the 20 in.

Now considering this "photo-transferring process" in conjunction with the "Frey" chalk grain photo-chromo litho process, in which colour work printing formes can be mechanically reproduced facsimile in four or five printings, in the most perfect printing form yet achieved, then utilizing for the printing of these results, the Hayes tubular, reel-fed, simultaneous, "all-rotary machine process," it will then be readily conceded that the lithographic industry has thus secured the most perfect, economic, and speedy colour printing process yet known to mankind for the production of satisfactory colour-printing, both for normal requirements as well as for the most stupendous demands of modern necessities



The London Etching Company, Ltd

After the Fire at the Hayes Universal Printing Co.'s Works, Letchworth

The scope and accomplishments of the Hayes process have been fully referred to in the last three volumes of this Year Book, along with some actual examples of the work done by this process.

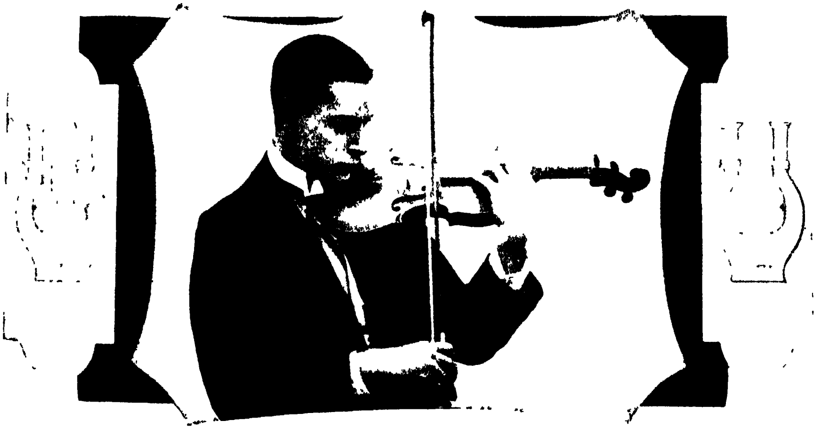
A multi-coloured example would have appeared in this issue, but for the unfortunate circumstances of a disastrous fire, which has delayed production.

This conflagration occurred at a most inopportune time, as developments had transpired for a very important extension of the process for additional exploitation upon more comprehensive lines; and its application to the PAPER PRINTING industry.

Hitherto the process had been devoted almost exclusively to the Calico Printing trade, although a considerable amount of experimental work has been done to demonstrate its applicability to the Paper Printing industry also

It is, however, gratifying to record that the directors of the Company have met the calamity in a very vigorous and spirited manner indeed, as immediate steps were taken to replenish the loss by providing for much larger and more capacious works, equipped with double the amount of printing machinery and plant, every effort being made to re-establish the working and productive conditions as speedily as possible.

As has already been stated, these three economic giants of lithography—each the very acme of power in its own particular sphere could, by uniting their powers conjointly upon any given range of new exploitation, such as the production of *newspapers possessing natural coloured illustrations*; or in providing more beautiful and serviceable *mural decorations*; as well as in quite a host of other commercial directions, permanently exalt lithography to the paramount degree of merit and honour amongst the pictorial colour printing processes of the world



KNIGHTON & CUTTS F. A. WILLIAMS, photo

THE FIDDLER

THE COVENTRY ENGRAVING CO. E. O. HOPPE, photo.

DIGNITY AND IMPUDENCE

Inks by Shackell, Edwards & Co., Ltd.

PHOTOLOID—

THE NEW PHOTOGRAPHIC MATERIAL.

By Dr. HENRY E. KOCK, Cincinnati, O.

GARRATT & ATKINSON
STUDY

SO many enquiries have been received regarding the new photographic material that has been called Photoloid and announced for the first time last year in this Annual, that it has been deemed necessary to give a few more explicit instructions on the possibilities of this product.

The base of Photoloid, a cellulose of unchanging and stable nature, prevents any decomposition due to atmospheric conditions. The emulsion, of such a nature that on photographic reduction produces a stable metallic deposit, assures a permanent picture that will withstand the ravages of time as only a carbon transfer can.

Aside from its permanency the artistic possibilities with special regard to tonal values have received the commendation of the leading artists in the profession. A great range of tones is possible on this material, ranging from a deep carbon black through the sepias and reds to the yellows and all these by direct development and not by retoning

Aside from pure photographic tones a number of miniature artists have submitted examples of their work in colour that rank with the best ivory miniatures ever made.

It is not surprising that Photoloid has taken the American market by storm and that our European confrères have been so anxious to get more light on this vital topic.

Photoloid is a special material, similar in appearance to ivory or porcelain, with certain advantages not possessed by either. It is the first practical and commercially successful print material other than paper. It is semi-translucent and made in colours of buff white and ivory. The surface is firm and absolutely matte.

Photoloid prints resemble carbon and platinum. Having no absorptive index it washes and dries rapidly. Prints are easily manipulated, do not curl up in the developing solutions and lie flat on drying. They are easily mounted, framed or put up in special artists' cases that the demand for Photoloid has created.

For photo-mechanical purposes Photoloid has found quite a market in agents' sample cases, especially for furniture, carriages and harness baby buggies and such other manufactures where good photographs are imperative. The ease with which these can be washed enables the salesman to have a line of pictures constantly clean and fresh.

The manipulation of Photoloid is similar to developing paper with a few extra observations necessary, due to the nature of the material There is no mistaking of front and back, as the surfaces are entirely different, the back having a high polish

The character of the negative should be one rich in detail, as the emulsion brings out everything that the negative contains Time of exposure, varying, of course, with the light, averages about 6 to 12 seconds Development with the above formula A will be completed in about 4-5 minutes Fixing in 10 minutes and washing 15 minutes will show how long it requires to work up a single print. Pictures are dried by suspending from a line when they dry in about 15-30 minutes.

Any defects in the negative, etc., can be removed by retouching Photoloid taking the retouching pencil with great ease

Severe tests as to permanency have proved Photoloid the most reliable material that critical experts have yet seen, and judging from the great number of letters from the leading photographers in America it seems to answer the artistic requirements the profession demands

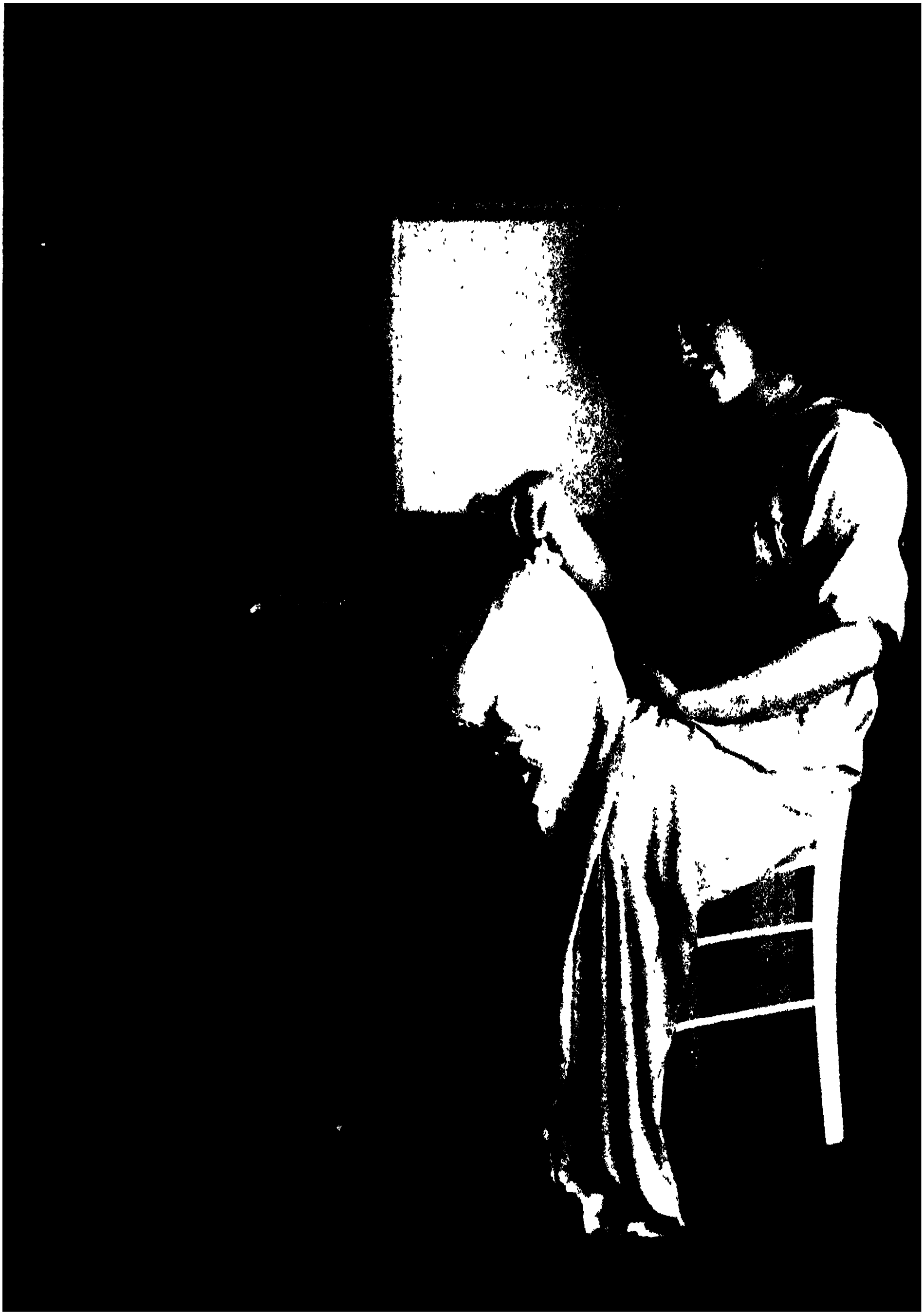
Garratt & Atkinson

A Tailpiece Design

The Grout Engraving Co D

MT. BLANC FROM THE ITALIAN SIDE.

Inks by Shackell Edwards & Co., Ltd



THE POLYCHROMIDE PROCESS.

By ARON HAMBURGER,

Managing Director of the Polychromide Company

GARRATT & ATKINSON

IN reply to your invitation to contribute to PENROSE'S ANNUAL some notes on the year's progress with the Polychromide System of photography in Natural Colours, I will, with your permission, limit myself to a few brief comments on new applications of the process during the year.

A little over two months spent in New York (where the Polychromide Company of America have opened a beautifully fitted and equipped Studio and Laboratory at the corner of 38th Street and 5th Avenue) gave me an excellent opportunity of coming into contact with the colour printing over there and with its leading exponents. I must confess to astonishment at finding so much more general use for commercial purposes of three and four-colour, off-set and gravure work in colour than is the case here. The quality of the work done by the best firms is very good indeed. The subjects, however, often leave much to be desired from the point of view of art value. But what impressed me most in this, my first visit to my native country after more than ten years' absence, was the great interest manifested in everything new and progressive brought to the attention of the largest firms there. At the New York headquarters of the Polychromide Company day by day I had the pleasure of receiving the heads of most of the important printing, plate-engraving and publishing firms in New York City, Philadelphia, Boston, and as far west as Chicago and Kansas City. We were at once inundated with orders for sample photographs and on the first day we had our separation cameras in operation, we had fourteen orders to execute. These ran the gamut of every possible variety of subject, and while I was in New York we had hats, cloaks and suits, men's clothing and furs on living models. We executed a lamp catalogue for another firm ; we photographed opals and precious stones with eminent success. Flowers, landscapes and old masters were a few only of the subjects given us during the course of our visit.

Among the engraving firms who have made plates from the Polychromide negatives, and reported enthusiastically upon the process, are such well-known houses as The Beck Engraving Co., The Zeese-Wilkinson Co., The Walker Engraving Co. and Edward Stern & Co.

The most interesting part of the year's experience, however, has been, in our opinion, the combination of polychromide photography with colour photogravure, for the example of which in this issue we are indebted to the Van Dyck Gravure Company of New York, who are pioneers in this beautiful process, and most successful with it. We find we can get excellent results more quickly with this process than with any other we have seen. On the other hand, where great sharpness and decisiveness of detail is required, I still incline to the opinion that four-colour process work will hold its own

The application of polychromide to photo-lithography and off-set is also one of the developments coming forward rapidly, the early results of which are most satisfactory, and I hope in the next issue of your Annual to put some specimens of off-set work plus our colour photography in your possession Meantime I wish to express our obligation to Messrs John Swain & Sons, Ltd , The Anglo Engraving Co., Ltd., and The Vandyck Gravure Company for the illustrations in this volume, which I think will demonstrate some progress made by our process during the year

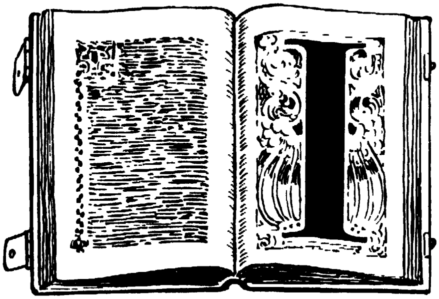
The Tone Photo-Engraving Co

E. T Holding, photo.

Roses

THE PRINTING OF BOOKS.

By CHAS. T. JACOBI, of the Chiswick Press.



IN specifying the good points which go to the production of a fine book it is understood that this article does not apply to the printing of newspapers, magazines or that class of jobbing printing which falls under the head of commercial work, but is limited strictly to that particular department devoted to the design and execution of the book, which is or should be "a thing of beauty and a joy for ever," as far as it is humanly possible and practicable to make it so. To arrive at this suggested perfection of course it is necessary to divide a well-produced volume into three stages, *viz.*, the design, the material to be employed and the actual method of execution. To do all this satisfactorily requires some amount of training and considerable discrimination or judgment, or as some may call it taste, which is only acquired by long practice. A good deal has been said and written about the revival of printing since the Exhibition of Modern Printing, held at the galleries of the Medici Society in the autumn of 1911. At that exhibition were shown good examples of work mostly executed since the foundation of the Kelmscott Press by the late William Morris in 1891 up to the present day. The productions shown were largely from the various private presses that have mainly sprung into existence since Morris died, and although the exhibits were generally produced rather for the dilettante than for the ordinary purchaser, much was to be learnt from the great variety of books, many of them good in conception, displayed at this exhibition. It has been said that to produce a good book costs practically no more than to produce one that is badly conceived. This is often the case; for it is quite possible for the artist-printer to produce with even poor materials a tolerable piece of work, provided he has the necessary experience. For instance, the market value of a fount of type of good design is no more than that of one of an inferior character—it is simply a matter of selection. Again the precise *format* of the type page and its exact position on the printed leaf are two other important factors in the appearance of the book. Then with careful presswork the whole may be so produced, even if not printed on the best paper, as to obtain a pleasing and lasting effect.

The first consideration in choosing the type should be that it is fairly large, so as to be easily readable. This is governed generally by the size, that is the height and width of the volume, so far as is consistent with the length or bulk of the manuscript. Small faces of type should not be used except for footnotes, or say for works of reference, and the use of such founts for volumes to be read through from cover to cover is most reprehensible if the eyesight of the reader is to be considered. Again if the length of the line is not too great it is better to use a somewhat larger fount of type than to employ one of medium size with the lines of the page unduly leaded or spaced out. Apart from legibility, the larger type is really less costly to set up in the first instance.

For book-printing in general the character of type termed "old style" is suggested as being more appropriate in design, and if it is requisite to use other sizes than that adopted for the body or text of the work, care must be taken that the same series of design is employed throughout. The Book Production Committee of the Library Association has been engaged for some time in formulating certain recommendations in these respects, which have received the approval of some of the leading publishers, and will be published this autumn. These recommendations include not only typography, but also the selection of suitable papers, with some valuable suggestions respecting the binding of books, the adoption of which will contribute much to the improvement and preservation of our future literature. It is well known that the cost of papers has been cheapened so much in recent years that as a result the quality has suffered, and the lasting properties of the book have been considerably reduced. These remarks also apply to the ordinary class of cloth binding, which has been made more difficult by the use of an inferior kind of paper in printing. Books produced to sell cheaply must be machine-printed on machine-made paper and bound by machinery, but in adopting these methods there is no reason why an intelligent interest should not be given to the details of selection and manufacture. As already remarked, much can be done by the considerate and co-ordinated appreciation of the workman, even if he has not the best materials to work on. If he has a thorough grasp of his own particular craft, and a knowledge, it need only be a superficial one, of the other departments which contribute to the making of the complete book, it is most helpful to him in dealing with his part, and he can then give consideration and make allowance for the other sections of the work which follow.

Careful press reading and the use of a good black ink are two other important details in the building of the book; bad reading or correction by the printer will mar any book, for nothing is so provoking as to find errors creeping up, although in other respects the volume may be fairly well done. Again an ink that is not permanent is a great eyesore to the book-lover, for the cheap inks are not a definite black and have a tendency practically to go still more "off colour" in course of time.

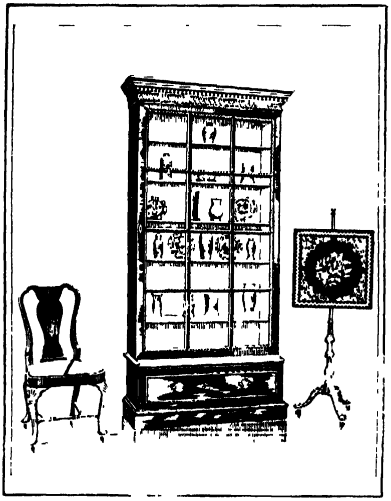
It would be invidious to name any particular series of books now being published as models, but the publisher of to-day is beginning to realize that it is possible, with the co-operation of his printer, to turn out fairly dainty books of good design at a moderate cost. The discriminating book buyer can appreciate these efforts and is not slow to avail himself of books made with some pretence to construction on sound lines.

Briefly, to summarize the good points to seek for in a well-produced volume they are as follows: that the type is of good design and of a readable size, with due regard to the size of the book, that the printed page is of correct shape, with fair margins and the printed area of the page proportionate to that of the leaf of paper, that it should be free from errors and carefully printed in dense black ink that will not fade, on a paper that is neither too thick nor too thin, and which is of a close, firm and even texture. Papers that are thick are clumsy to handle, and those very thin are troublesome to turn over in the bound volume. As with type, so the substance of paper should in some respects be regulated according to the size of the volume, a folio or quarto volume requiring a somewhat thicker paper than that necessary for an octavo or smaller work.

It is not intended that bookbinding should be dealt with in this short article, except to say that it is essential that the printing be arranged with the knowledge that the binding is the finishing stage of the volume, and this is why it is so very important that the paper on which the book is to be produced should be studied: a paper that is not strong, or is too thick or too thin, hardly gives the binder a fair chance, and again it is detrimental to the proper folding or sewing of any volume if it is printed in very large or very small sections—these points must be regulated by the size of the book and the precise character or thickness of the paper used, subject to the suggestions already made

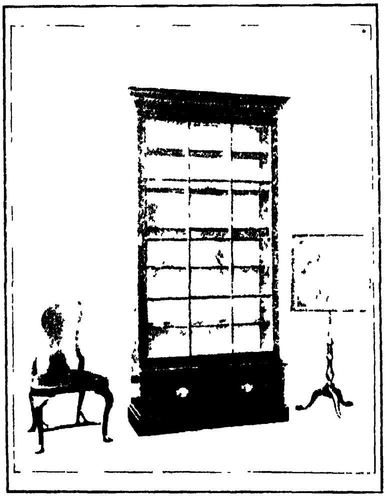
LINE DRAWINGS.

By J. R. McGOWING.

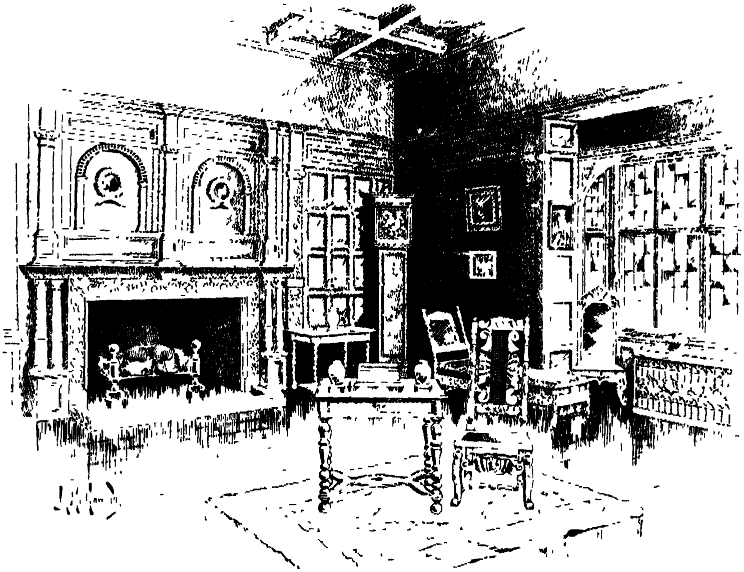


Antique Furniture

NOTWITHSTANDING the rapid advance of the half-tone process, there is still, and must continue to be, a steady demand for line work, especially in cases where detail is of importance. Half-tone will always commend itself to such illustrations as scenery and the like, where soft shades and distance have to be reproduced, but there are numerous instances where line work is absolutely essential if intelligible and pleasing reproductions are desired. There is also the question of paper and printing and the size of the blocks. Take as examples the accompanying illustrations. The improvement in the line drawing of oak room is most pronounced Here part of the furniture has been re-arranged, several finishing touches added to panelling and ceiling and the whole thing generally brightened, without in any way departing from the correct representation. It is left to your readers to judge which illustration would best assist in the sale of this antique lot It may be argued in this and many other cases that the photos could be retouched and improved in this way, but to do this thoroughly would cost as much, if not more, than a line drawing and still would not give that touch of "pretty style" obtained in the drawing. High-class half-tones for high-class catalogues will undoubtedly remain, as the conditions are



Antique Furniture



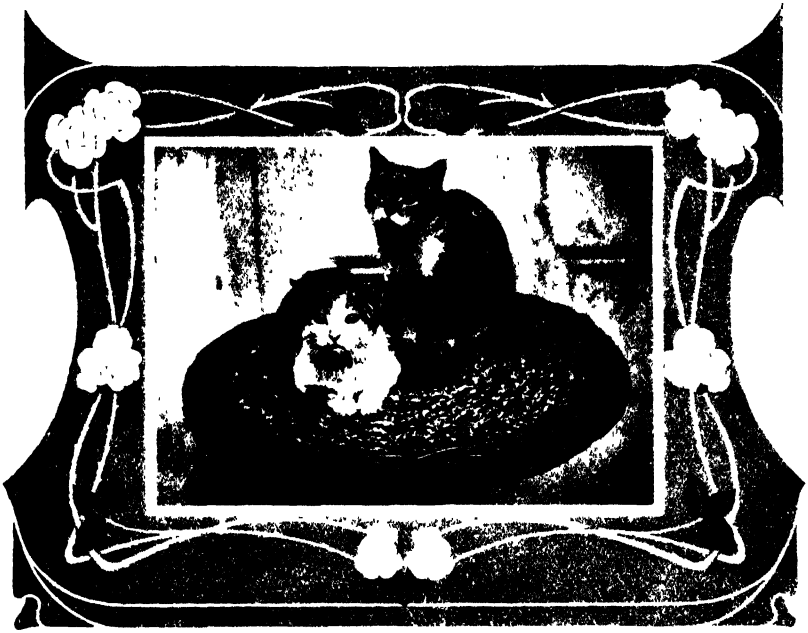
An Oak Room

An Oak Room.

favourable to good reproduction, but as soon as these conditions are wanting, the line drawing of the present day asserts itself as a happy medium between the half-tone block and the woodcut.

Line work has improved very much in recent years and is becoming more in demand where clear illustrations are required for advertising purposes in trade journals and similar periodicals, where the best half-tone block would fail, and, one might even venture to suggest, runs the excellent woodcut very closely in point of quality, whilst the cost is much cheaper.

The four illustrations to this article were reproduced by The Bristol Photo Engraving Co., Ltd



The Half Tone Engraving Co., Ltd. R. Braid, photo

KITTENS

THE MOUNTING OF PROCESS BLOCKS—THE £1000 WON.

By T. C EAMER.

GARRATT & ATKINSON

HAS the trade become so used to the outcry against the method of mounting process blocks that they have almost come to believe that after all there is "Nothing like wood?" It is so easy to work, so cheap into the bargain two items that seem to be of the greatest moment to some process engravers, so many of whose customers insist upon cheapness rather than quality

Why worry then? Go on in the good old way and let the printer do his best with blocks that warp out of shape almost before they are delivered, and that take him hours to get into condition for use upon his machines, the loss is his, what does it matter!

In last year's "Annual" Mr Harold Hood the printer blockmaker, voiced once more the need of something more suitable than the wood mount now generally used, and announced a reward of £1,000, not that he was prepared to pay down the reward, to the person who produced the desired mount, but as he pointed out, there was a lot more than the £1,000 to be won by the fortunate inventor who should succeed in giving us the perfect mount.

Before the year has rolled away a claimant for the reward has arisen, for the Marshall Patent Mount claims to meet all the requirements, *viz*, cheapness for it costs but little more than wood, it cannot warp or shrink under moisture or heat, for to all appearance it is a solid metal mount, it is easily trimmed and can be made to any size, either picas or inches, or any other standard measurement, so as to fit any size half-tone block, and when inserted in a type page it meets the metal type with its counterpart, so that the block lies snug and true, metal to metal in the midst of the type, and finally, the plate can be either nailed on in the usual manner or sweated on, flush all round.

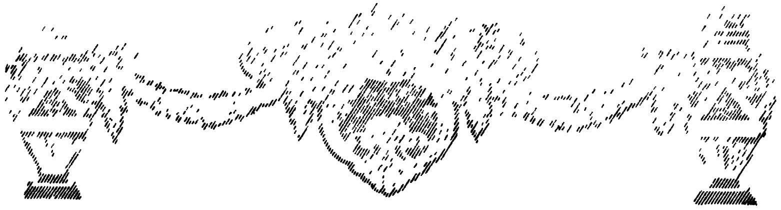
The proprietors of this mount have such faith in it that they have secured the Patents, not only for this country, but in all the countries where there is likely to be a demand for it.

That this mount is capable of meeting the claim made for it seems to be pretty well proved, as it has been in constant use for the last six months in a well-known printer's in the City of London, where it has been tested under the every-day working conditions in practically every way in which such an article could be tested, and has proved its efficiency. Here then, is the ideal mount, especially for colour blocks.

The question now awaiting solution is, will the printer pay the small increased price for having his blocks at last guaranteed free from warp, dead true, square and type high, by a method that will not only turn them out true for "five minutes," but by which they will keep true for five years or fifty, if needful?

The proprietors claim to have solved the riddle of the printers' difficulties! Will the printer believe it, or will he, for fear of the slightly increased price, go on losing heavily in cost of make-ready and machine running, rather than save as many shillings here as he spends in pence for his mounts? Time will show, and as printers, like the rest of us, are supposed to be in business for the purpose of making money, it is to be presumed that they will realize where their interest lies

For the past quarter of a century the printer has been troubled by the question, and from time to time relief has been promised by the various patents that have been taken out, many of them having some good quality or other, but failing in some other respect which prevented their adoption to any great extent. The patentees of the mount here referred to have given careful consideration to all the previous patents with a view to avoiding failure and after careful tests have come to the conclusion that in offering the trade their Patent Mount they are offering what will not only prove of inestimable value to the printer in assisting him to turn out better work, but will at the same time considerably reduce his working costs in the shape of make-ready and machine running, two of the most fruitful sources of loss known to the printer.



Garratt & Atkinson.

A Tailpiece Design

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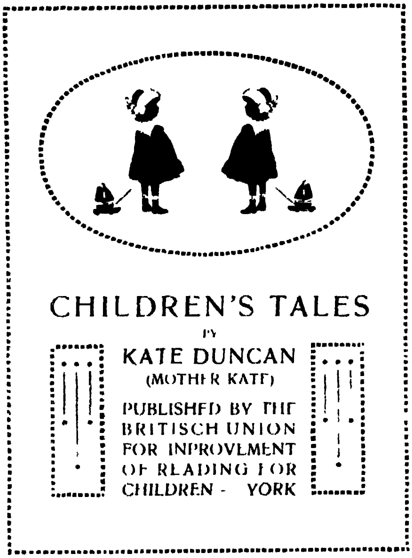
AN ADVERTISER'S ENGRAVER.

By WALTER J AVERY.



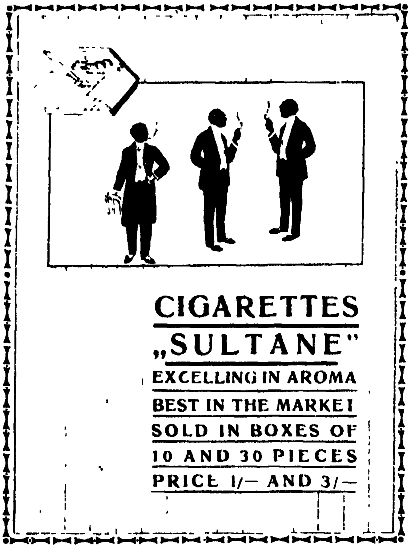
CHILDREN'S TALES
BY
KATE DUNCAN
(MOTHER KATE)
PUBLISHED BY THE
BRITISCH UNION
FOR INPROVEMENT
OF READING FOR
CHILDREN - YORK

MICHAEL ANGELO, the great sculptor, had just completed one of his masterpieces and sat looking at the majestic form he had carved out of a piece of rough stone It was so perfect that while gazing upon his handiwork it seemed to him all that was lacking was just the human touch He, for the moment, imagined it to have actually taken life, and he exclaimed, "Speak! speak!"

The sole function of the modern advertisement is to "speak" The story must be there, and the message must be conveyed, any advertisement that does not do this loses its power and is not worth the paper it is printed on There are many, or at any rate several, features about an advertisement which are essential to make it "speak," but for the purpose of this article I will confine myself to one only, *viz*, the Illustration. Whilst I admit that even an illustration is not absolutely necessary, I also hold that an advertisement without one has to be very cleverly drawn up, and the choice of type and its arrangement has to be carefully considered, if it is to have the power to attract favourable attention, and leave a lasting impression on the minds of the readers.

Probably most of my readers will agree with me upon the question of the need of illustrations– suitable ones, of course– but the reason why I think illustrations are not more liberally used is on account of the cost of the drawing, which in some cases is very expensive. This cost may vary from one, to five or even ten guineas; therefore, for a small advertisement this is a serious consideration and a drawback. This difficulty may, however, be overcome by what I term a judicious selection of "stock" blocks, which are made by engravers in quantities and can be bought very cheaply. This idea is not altogether a new one, but is one which might be profitably revived on up-to-date lines.

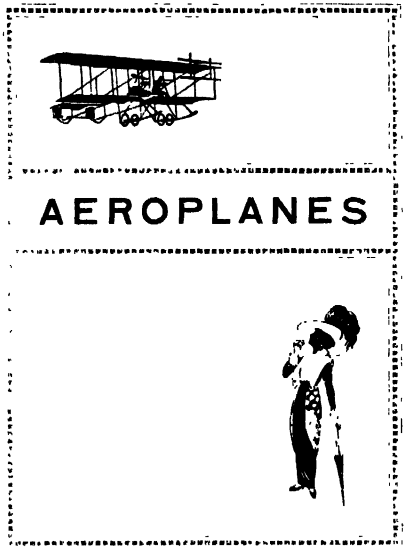
All the accompanying illustrations are taken from a compact and admirable little catalogue issued by Messrs Joh. Enschedé & Sons, of Haarlem, Holland, to whom I am indebted for their courtesy in supplying them. They very ably emphasize my point in showing how effective the addition of a small descriptive illustration can become if judiciously selected and in harmony with the announcement it intends to convey.



CIGARETTES
„SULTANE"
EXCELLING IN AROMA
BEST IN THE MARKET
SOLD IN BOXES OF
10 AND 30 PIECES
PRICE 1/— AND 3/—

The pose of the children in the cover for a children's book, the expression of enjoyment shown in the announcement of "Sultane" Cigarettes, the appropriateness of the Aeroplane announcement and the undeniable harmony shown in the two letter-head designs, all prove how effectively these small " stock " blocks can be used to an advantage cheaply and profitably. I should mention, however, that in the booklet from which these pages are taken they are printed in two colours, making them look better still, but it shows that even in one colour their advertising value is just as great.

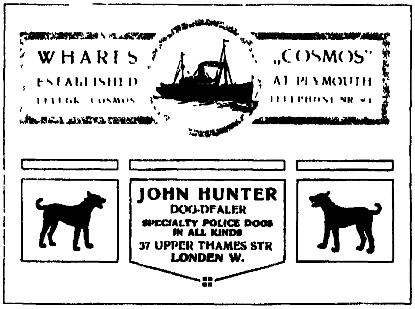
I am not sure whether it is the Advertiser--the man who writes the " copy "—or the engraver, that is responsible for there not being a larger demand for this class of illustration, but I think the average



engraver does not cater for this class of work, therefore, the advertiser is not familiar with the means that should be at his disposal. I know there are typefounders' catalogues where some of these "stock" blocks may be found--but they are either obsolete or obviously out-of date. So then here is the opportunity for engravers to start a new line of business which, if thoroughly carried out, could be made very appropriate. I would suggest that an engraver should prepare a special brochure of designs—say for one particular business and then circularize all the advertising men with them When this has proved successful, which it undoubtedly should do, another business should be exploited, and by going on in this way a business could be built up in supplying illustrations to every business. I say *every* business, because I believe that every business must advertise if it is to make progress, and if engravers would adopt this method of making their work familiar to advertising men they would be planting a seed which will inevitably bear much fruit. The resources of the photo-engraver for line, half-tone, two-colour, three-colour, offset, and even photogravure, only help to encourage the use of illustrations for all purposes, and there is no reason why they should wait for the work to come to them, when by a little organization on the lines I have suggested, they could create the demand for much more work, and get it, with a comparatively small effort ; only it must be borne in mind that each specimen must bear the mark of originality upon it and be attractive and pleasing to the various tastes to which it is applied. The design and examples must be kept up-to-date and new ones constantly added. In this way the advertiser and the engraver would greatly increase the efficiency and effectiveness of publicity literature to the mutual benefit of both.

To refer again to my opening remarks, the chief point, after all, is for the advertisement to "speak," principally with the aid of an appropriate illustration, judiciously chosen.

The four blocks which illustrate this article were made by Messrs. Joh. Enschede & Sons, Haarlem, Holland. The lettering on the originals was in Dutch, and has been translated into English specially for the article.



J. NICÉPHORE NIEPCE'S EARLY PHOTOGRAPHIC WORK WITH BITUMEN.

By MAJOR-GENERAL J. WATERHOUSE, I.A.

THERE is no very definite evidence to show when J. Nicéphore Niepce first began to use bituminous substances as the basis of his early experiments in photography and photographic engraving.

Senebier had shown that various resins, and among them guaiacum, were sensitive to light, and in 1817 we find Niepce experimenting with this resin in place of silver chloride, but unsuccessfully, the alcoholic solvent he used attacking both the exposed and unexposed parts of the image. He then tried phosphorus, also unsuccessfully. Of his work in the years 1818 to 1826 there is little record, but, according to Fouque (*La Vérité sur l'Invention de la Photographie*) he appears, in 1819, to have hit on a new method of working, and from a letter to him from his brother Claude, dated 22nd January, 1820, we gather that he had surmounted the difficulty of finding a solvent which would not affect the exposed parts of the photographic image. In a letter dated 17th March, 1820, Claude lets a little more light on the new process, though still, as always, very secretive, and writes: "Combien je désire que d'aussi belles espérances puissent se réaliser, et que le procédé que tu te proposes d'essayer avec le vernis obscur et susceptible de céder au fluide lumineux à l'aide de *l'h-oui* dont je me rappelle fort bien, et que cependant l'impression puisse être inaltérable."

This seems to point very definitely to some process in which a dark varnish was exposed to light and then treated with a solvent derived from *coal*. Or, possibly, *l'h-oui* may refer to a bituminous coal-like product soluble in certain volatile oils and showing sensitiveness to light like asphalt. There is no other word in the French language but *houille* (coal) which contains the combination of the letters *oui* with the initial *h*. Living near the mining districts in the north-east of France, Niepce would have opportunities of obtaining various bituminous products, solid and liquid, for experiment.

In Claude's letter of 11th April, 1820, there is mention of a new line the experiments have taken, and of the extraordinary fact of the luminou fluid acting in concert with heat, and of the problem being entirel solved if the tints could be entirely carbonized while preserving the respective intensities, which produces the effect. This seems to poin to a solidification and insolubilizing of the bituminous varnish by th action of light and heat.

From the above there seems to be little doubt that Niepce firs turned his attention to bitumen about 1819. His great object was t produce a printing plate by the agency of light, and to find a sensitiv varnish which, treated with a suitable solvent after exposure, woul give him a permanent image which could be etched with mordants i the same way as an ordinary etching by hand.

The use of bitumen in etching grounds is quite ancient and migh have been known to Niepce from his early experiments in etching o stone, and he would also have known the usual solvents for removin the varnish after etching. From the few records available, cited above it seems possible that he may have tried some local bituminous products in his early experiments, but finally adopted the more sensitive Syria bitumen dissolved in oil of lavender, applied to his plates with a dabber, as in ordinary etching. The question, however, must remain a mystery

It may be noted in this connection that in a paper by Richard Kirwan, F.R.S., "Experiments on the Composition and Properties of Carbon in Bitumens and Mineral Coal," published in Nicholson's Philosophical Journal, Vol. I, p 487, 1798, he remarks, "It is, moreover, well known that liquid bitumens contain inflammable air and carbon and that they absorb atmospheric air when long exposed to it and light; that in consequence of this absorption they are thickened, blackened, and condensed, first into mineral tar, then into mineral pitch or maltha, and lastly into asphalt."

From this it would appear that the action of light upon bituminous substances was well known, so early as 1798 It is, therefore, not impossible that Niepce may have been led to experiment with bitumen from a knowledge of this fact.

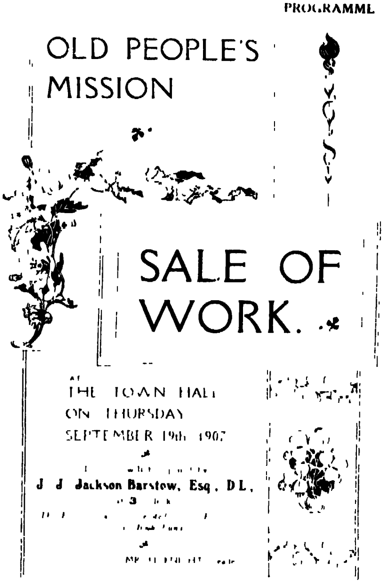
THE VALUE OF SIMPLICITY IN TYPE DESIGN.

By F. J. TREZISE.

IF there is any one point upon which our modern printing is open to special criticism, it is the fact that much of it is too elaborate and too complicated. As compositors we do not seem to be able to get entirely away from the idea that a lavish use of decorative material is synonymous with good typographical design. We overlook the fact that what might be termed good taste in printing is largely a matter of restraint in the use of the material with which we construct our designs, and that a large percentage of our work could be greatly improved by a process of elimination of decorative material.

Beauty is always in good taste, and Emerson says that "we ascribe beauty to that which is simple, which has no superfluous parts, which exactly answers its ends."

Now what is the end sought in the production of a piece of printing? To convey to the reader a certain message. Naturally, we wish to convey this message in a pleasing manner, and this has led to a mistaken idea that if we can get this message up in a "fancy" manner it will the more readily attract his attention. As a result, we smother the thought to be conveyed underneath a mass of decorative material and call the result artistic printing.



PROGRAMME

OLD PEOPLE'S
MISSION

SALE OF
WORK.

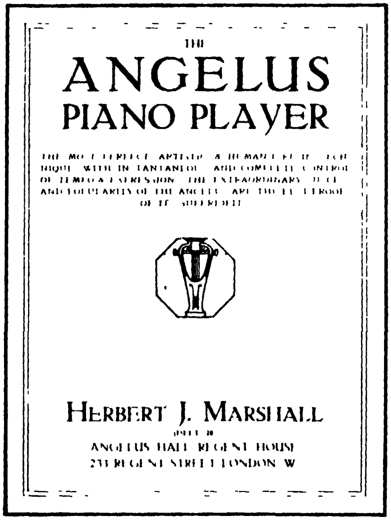
AT
THE TOWN HALL
ON THURSDAY
SEPTEMBER 19th 1907

[illegible]
J. J. Jackson Barstow, Esq., D.L.,
[illegible]

Fig. 1.

An example of over decoration. The ornaments detract from the legibility of the text matter.

For the purpose of better illustrating this question of simplicity of design as applied to type arrangements, two reproductions are shown herewith. Fig. 1 is a page on which is found a wealth of decoration, the greater portion of which is irrelevant and immaterial, in that it conveys no suggestion whatever of the subject for which the page was designed. Judged on the basis of Emerson's description of beauty as "having no superfluous parts," this piece of work falls far short of what is called for. It is an excellent illustration of the fact that the man who knows when his design is complete has mastered the greatest difficulty which confronts the compositor.



THE

ANGELUS
PIANO PLAYER

HERBERT J. MARSHALL

ANGELUS HALL REGENT HOUSE
233 REGENT STREET LONDON W

Fig. 2

A more simple design, and one in which the decorative spot aids in bringing out the subject

In direct contrast to this design is the one shown in Fig. 2. Here we have a page which conforms to the accepted standard of beauty - it is simple, it has no superfluous parts, it exactly answers its ends. True, it does contain a decorative spot, but the latter is of such nature that the subject of the text matter is strengthened by its use, and its omission would detract from the suggestion of music which the page is intended to convey.

Nor does the printer stand alone in this respect. Much of the work produced in our engraving houses exhibits the same tendency toward over-ornamentation, and a great percentage of this work is overdone rather than otherwise. In fact, there are but few examples to which one would care to add anything, although some decoration could be omitted from most of them to their improvement.

Verily, the simplest things are the best, and good taste, for most of us, consists in knowing when to leave things out of a job.

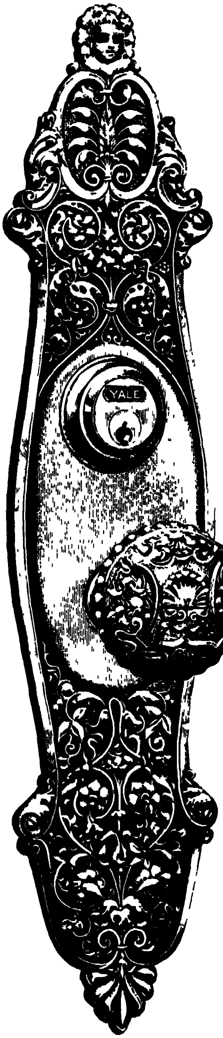
WOOD ENGRAVING.

IN recent years a keen appreciation of art and craftsmanship, as applied to illustrations especially of mechanical work, has made itself evident, in consequence of which, the demand for high-class wood engravings for catalogue work has been limited only by the scarcity of artists competent to execute it. Large catalogue houses have found the wood-cut to be the best and most economical medium for illustrating, where "long printing runs are required."

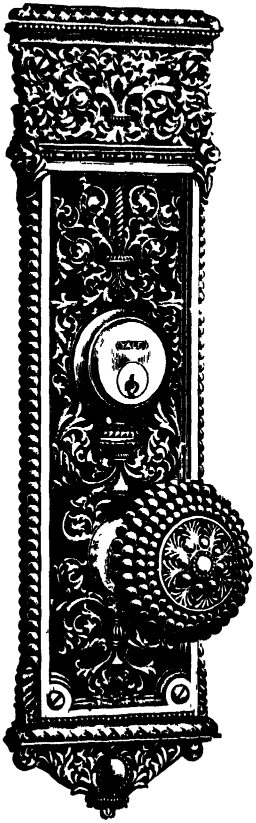
Wood engravings are deeply cut, and are available not only for highly finished papers, but also for machine finished papers, even such as have a rough surface, and therefore render available certain papers, which heretofore it has been impracticable to consider.

The lines on the wood-cut are made by deep angular grooves, from which any number of electrotypes can easily be produced, each and every one of which is an exact duplicate of the original.

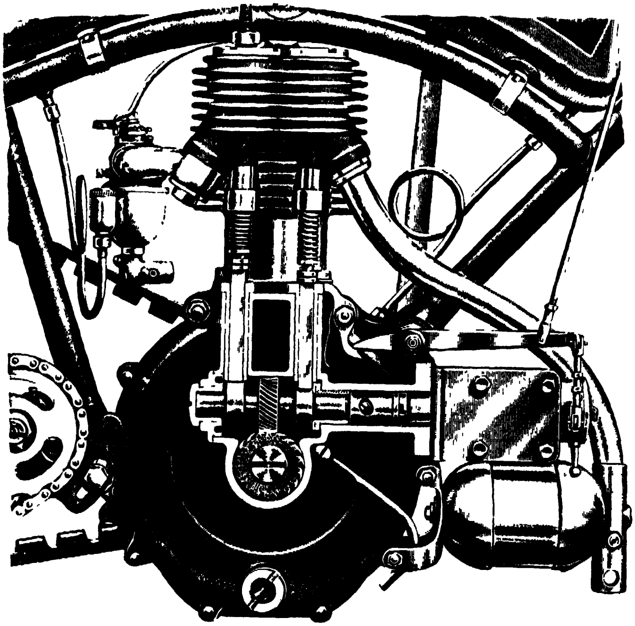
The wide variety

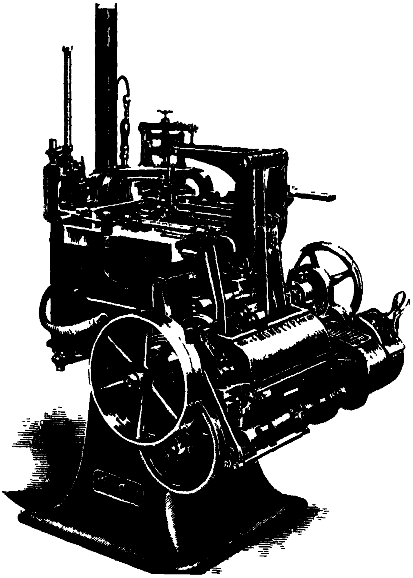


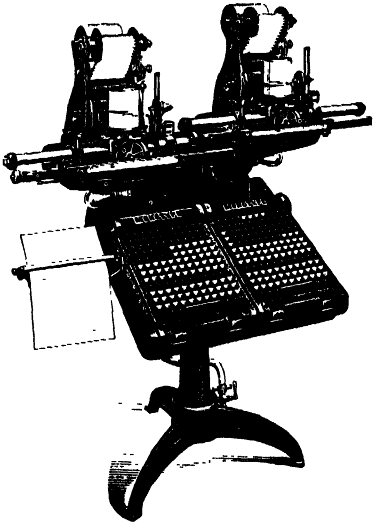
Wood-cut of Door Plate

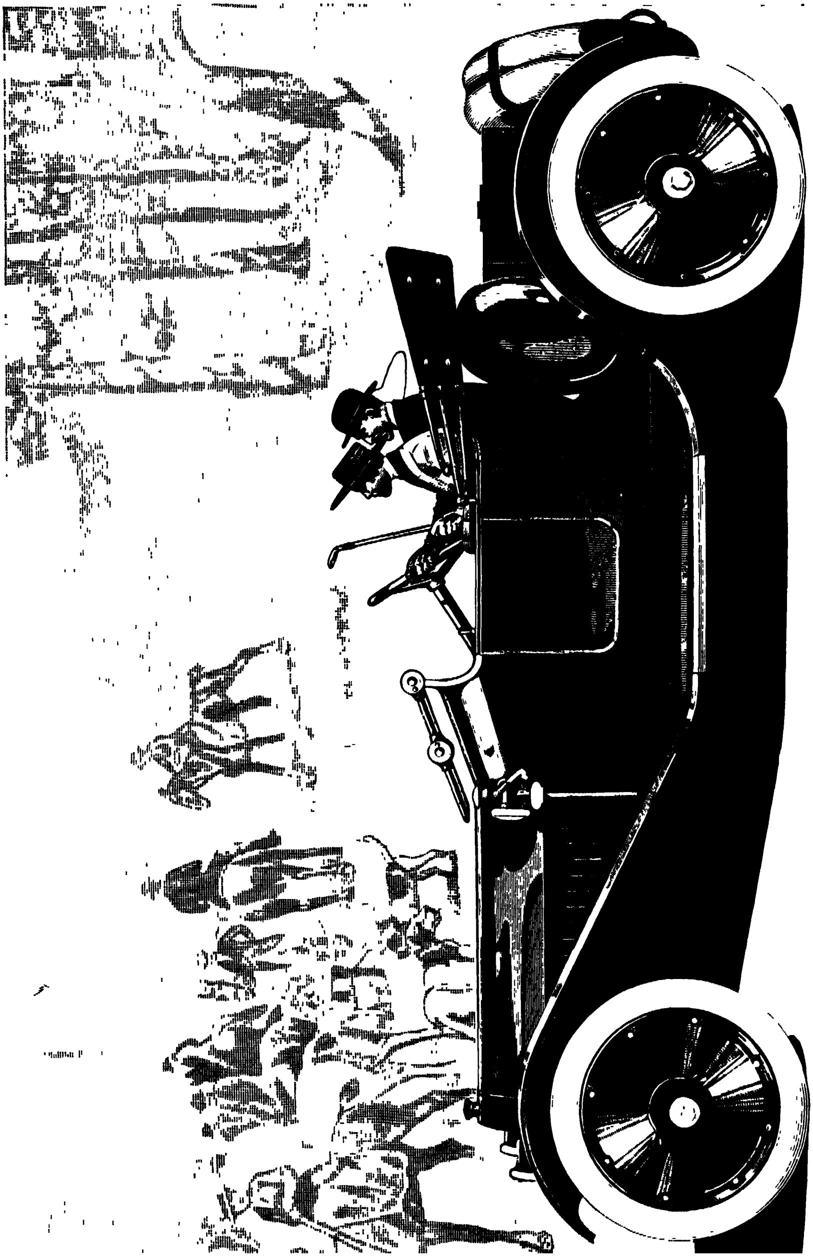


Wood-cut of Door Plate

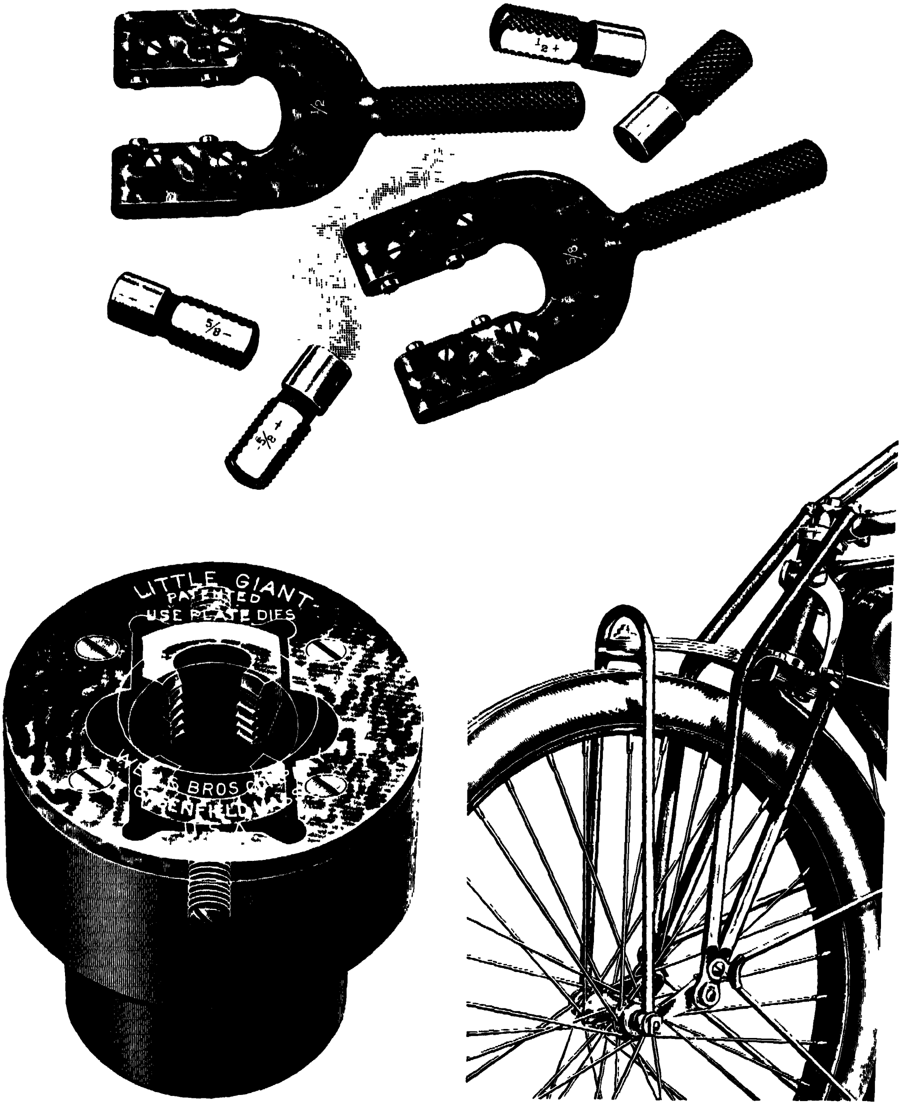




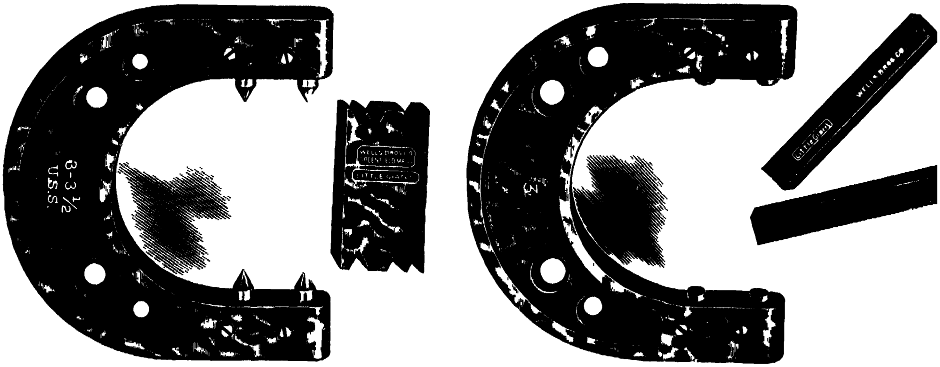


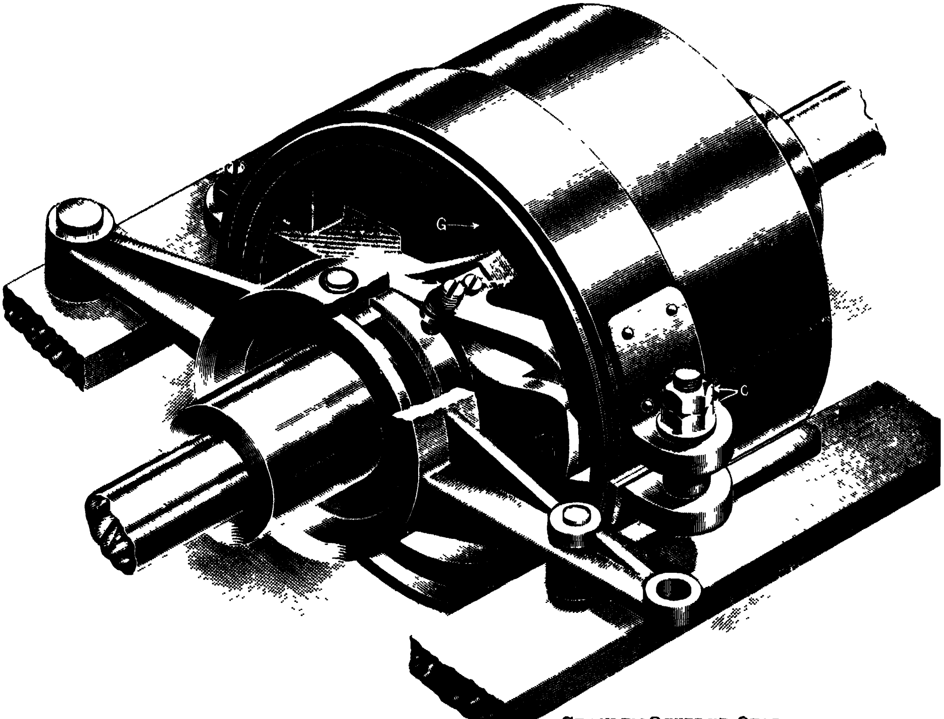


Wood-cut for a Motor Car Catalogue



Wood-cuts for Trade Catalogues



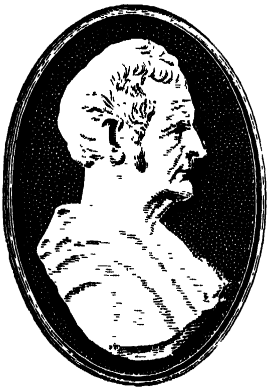


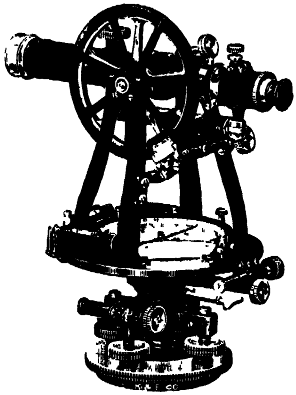
STANLEY REVERSE GEAR

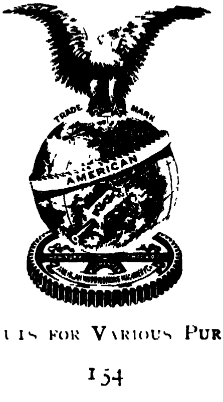
Wood-cuts for Trade Catalogues

of technique which the expert engraver can use, makes it possible to produce a fidelity and care in execution, and a clearness of detail, and brilliancy of tone, impossible to obtain by the many photo-mechanical processes now in use.

In connection with this article are shown some illustrations made by Dahl & Sinnott, of Hartford, Connecticut, U.S.A., which we believe exemplify the highest standard of the art attained in America, and which we feel will be a pleasing surprise to lovers of craftsmanship and where it appears that they have succeeded in overcoming certain crudities long considered incidental to the old style wood-cut, this class of wood engraving presents itself as an unusual opportunity to advertisers wishing a pleasing and conspicuous novelty in illustrating.







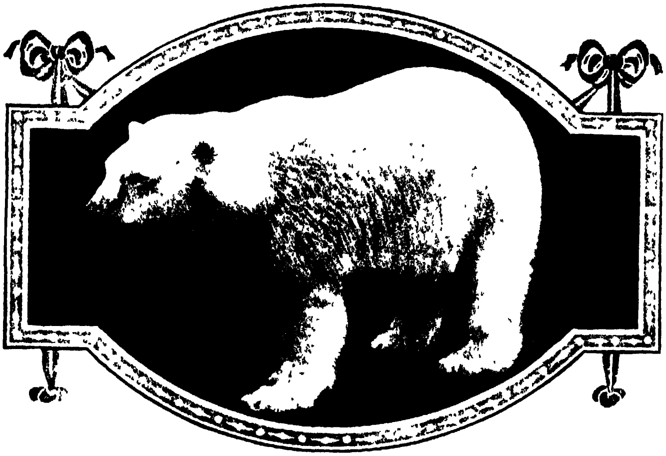
Wood-cuts for Various Purposes.

NO SENTIMENT IN BUSINESS.

By F C. TOLHURST.

NO sentiment in business is an accepted code familiar to all in the commercial world, the primary guiding axiom agreed upon by all in pursuit of money-making enterprises. The expression, common as it is, reveals some very remarkable conditions upon its anlaysis in practice It is obvious that no analogy exists between sentiment and business, as they are born from totally different impulses and they are not kindred attributes, yet are frequently found running parallel, apparently in conjunction with varied and often curiously strange issues, particularly in all established commercial undertakings, such as the printing trade, which as an industry is relevant to these columns A very important feature as with all trades, is the dependence upon an adequate competent staff of workers to consummate its business to a result satisfactory to those financially interested, the position is in contrast to business dealings that are of a passing ephemeral character, which are dealt with according to the particular circumstances existing and beyond that nothing further of concern is involved , the former conditions affording the material for comment.

Mankind is a complex creation, with varied separate feelings, moods and aspirations, and however lowly and mechanical in the world of industry the duties of the individual may be, he is inseparable in that work from some degree at least of feeling or sentiment , no amount of commercial specializing, machinizing, soulless demands of the workers, which modern progress has brought in its train will destroy it , it must exist in every human being worth employing, and the majority of business concerns wisely recognise this, to their advantage commercially, and their business reputation is enhanced thereby with added dignity , this phase of sentiment *with* business is exemplary and claims appreciation in its intelligent exercise. Another phase, lamentably deficient in this and sadly amazing, is the no-sentiment-in-business proposition, where it is belied with a very dominant bitter ruinous form of sentiment, business being actually subservient to it ; the sentiment of abnormal personal dignity and authority which reflects no value or true respect, where its exercise is totally out of concord and misdirected in the interests of sound and profitable enterprise , this form of sentiment, often very costly, must provide upon reflection very poor satisfaction to those concerned. Businesses are run for profit, and no one sanely has any other objective, it is the wholly absorbing incentive. No law of the land restricts the bounds of its profits, it is free from any qualms of unrighteousness in that direction, other agencies affording—very unevenly—the restricting control, for instances: competition, the market prices of material and the cost of labour, the latter conspicuously supplying a disturbing element; speeding up, facilitated and increased output can be demanded *ad infinitum*, but any request for extended consideration to the workers in view of this, is almost invariably met as being absolutely unwarrantable; the price of paper or ink may increase and the matter is faced with equanimity, no printer who wished to carry on his business would allow sentiment to interfere with his supply of needed material, but the claims of flesh and blood, equally necessary and actually the productive source of profits are approached too often with a very undue amount of suspicion and an acquired mental conviction that resentment, irrespective of any reason as it applies to business, must be adopted, and this attitude is strangely aggravated when the claims are presented through the medium of the workers' trade organizations; combined forces may control and literally dictate the prices of materials and they are accepted in a normal business way; if this rational procedure would dominate all dealings that arise in the course of business a very good purpose would be served, the best bargains always to be made and the eliminating of that evil sentiment which brings neither honour, credit nor profit.



ANGLO ENGRAVING CO., LTD. F. MARTIN DUNCAN, photo

SAMMY

THE AMERICAN POINT OF VIEW.

By EDMUND G. GRESS.

THERE is much admiration on this side of the water for the manner in which the employing printers of Great Britain have taken up the study of costing, or cost finding, as we term it. The congresses that have been held in various parts of Great Britain have rivalled in enthusiasm and earnestness those that have met in the United States.

There is now but one national employing printers' association over here. The Ben Franklin Club of America, which came into existence several years ago, has merged with the United Typotheta of America, and a majority of the Franklin members have joined the older organization. The United Typothetæ not only has an interesting history, but is strongly organized, with a large membership and a substantial treasury. It has borne much of the expense of the cost-finding propaganda and while continuing that work is devoting some attention to technical education. A national school of printing is conducted at Indianapolis and local organizations and individual members have similar schools in operation in various parts of the country.

Vocational training is receiving a great deal of attention in the public and private schools of America and instruction in printing is included in the curriculum of vocational schools in most large cities. It is realized that the short work-day and the long pay-roll have made it impossible to give the apprentice the attention he should have in the work-room and that it is necessary that the young men receive additional instruction in the technicalities of the printing trade.

Several successful printing expositions have been held in this country recently. The printers of the Middle West have annual expositions. New York City is also holding yearly expositions in the Grand Central Palace, and I understand that the one to be held in April, 1914, is to include competitive exhibits of printing and advertising.

Mention of advertising brings to mind the remarkable convention at Baltimore, Md., of the Associated Advertising Clubs of America. It was a large convention—they say there were six thousand visitors present—but we are not boasting of that; what America is proud of are the things that were said and the things that were done there. The subject that stirred the most enthusiasm and the references that brought the most applause had to do with the Association's motto, "Truth," which in American business is to replace the old "Caveat Emptor." The Yankee who made wooden nutmegs would be roughly treated by these earnest men, who are labouring to place advertising and business upon an honest basis. The declaration of principles adopted by the convention stated belief in "truth, the cornerstone of all honourable and successful business," and advocated a method of arriving at verification of circulation figures of newspapers and periodicals.

The United States Postal Department requires that newspapers print statements of circulation. Trade, class and technical journals are not required to make such statements, but an association of the publishers of such journals has been formed for the purpose of furnishing accurate and truthful circulation reports to advertisers. The members of the association voluntarily open their subscription books to accountants for examination and the accountants' reports are filled at points accessible to advertisers.

Typography in the United States should show improvement in the next five years. The type-founders are providing high-class letter designs and it is for the printer to use them properly. The present inclination in the style of type-faces and ornaments is toward shaded or gray effects. The shaded letters of to-day are based upon better models than those that were in vogue a third of a century ago. There is also evidence of the influence of the classic Roman in new type-faces and decorative material.

The magazines continue to show illustrations of the good sort. There is a respectable number of good illustrators in the United States and we are proud of the illustrative work appearing in American publications.

Many fine business homes for printing and publishing firms have been erected during the past year and others are being planned. In the smaller cities consideration is being given to those art features that make a building interesting, with excellent results. In New York City the tallness of buildings and the necessity for operating large machines many floors above the ground have led to experiments, with the result that vibration has been reduced to a minimum. Recent provisions for light and air are unusual. A prominent New York publishing house is at the present time erecting a building that will have no windows. The front of the building will be constructed almost entirely of glass, so treated that while it will admit light, it will exclude heat. Purified air, warm in the winter and cool in the summer, will be supplied throughout the building by special apparatus. There being no windows, noise from the outside cannot come in, and noise on the inside is deadened by the use of rubber floors and a special kind of wall construction. The head of this publishing house has many uncommon ideas, one of which is that all machinery should be painted white. He finds that white machinery makes for cleanliness and reflects light in the press-room.

In comparison with the high wages paid and the cost of doing business, the prices received for printed work in America are ridiculously low. Installation of cost systems has taught many printers their costs and this knowledge has assisted them in obtaining better prices. It is also necessary in the present state of the printing business that a printer shall sell not only manufactured printed matter, but service. This service consists of assistance in the preparation of the printed work, specialized knowledge, or extraordinary facilities of some kind. In fact, many printers are now advertising "service" to prospective customers.

BENN & CRONIN, LTD   R. BRAID, photo

AFRAID OF RAIN

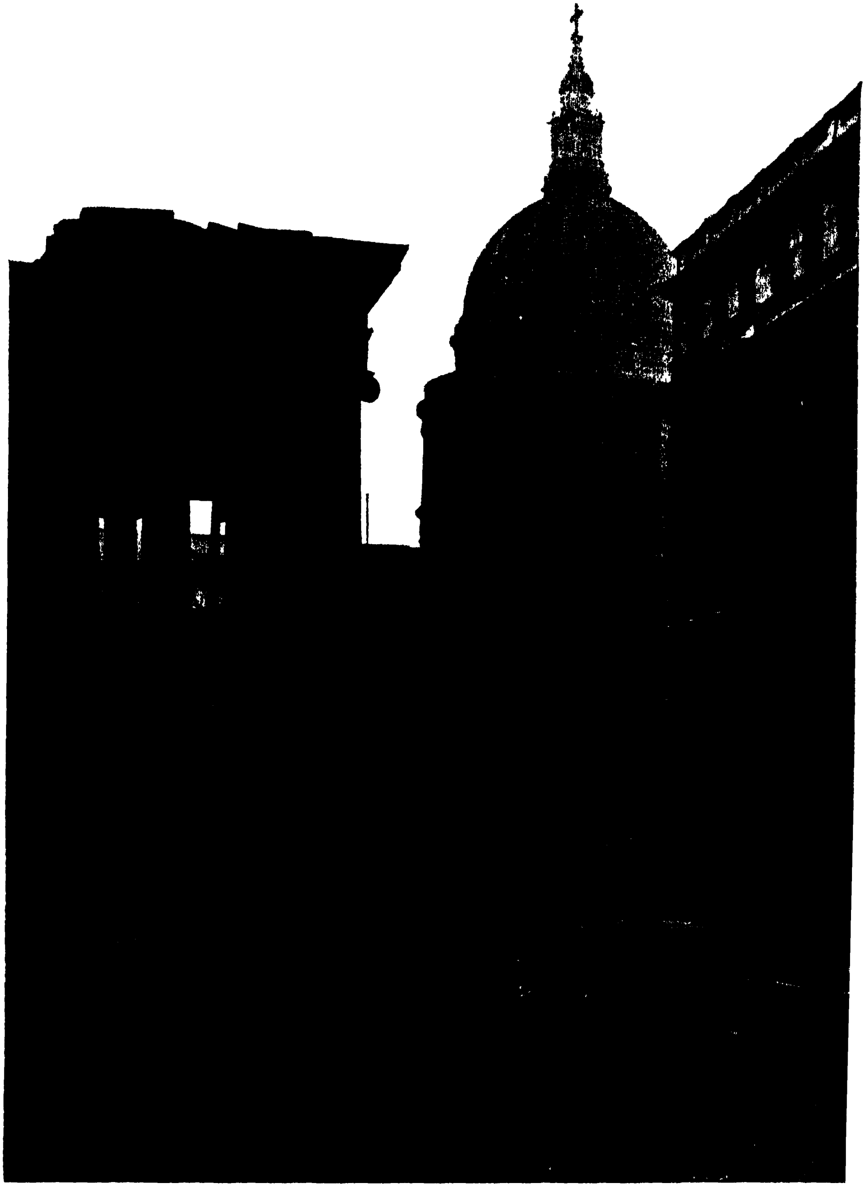
COLOUR BLOCKS FROM UNCOLOURED COPY.

THE most recent advance in the way of applied photo-engraving, which should become extremely popular with publishers and advertisers, is the making of colour blocks from uncoloured copy—a process introduced and perfected by the pioneer house of Carl Hentschel, Ltd.

As is generally known, the usual mode of procedure, when colour blocks have to be produced from a photographed subject, is to have the photograph coloured up either by dyes or albumen colours. This, whilst giving a pleasing effect to the eye, is not so rendered by the camera, the photographic base obtruding and causing a fuzzy and muddy result, generally unsatisfactory and disappointing, both to the blockmaker and his customer; but by the new process, not only is the cost of colouring the photograph eliminated, but there is obtained a sharp and crisp reproduction, combined with purity of colouring. An ample demonstration of these points is evidenced in the covers of the *Play Pictorial*, during the last few months. These have all been produced from glossy bromide prints with really wonderful results.

There is no doubt whatever that there will be a great demand for this class of work so soon as its merits become known, as by this method alone can pure and good colour rendering, combined with photographic accuracy be obtained, and its value on this account to the advertiser is incalculable. Then to the publisher of every class of work it opens a new field and enlarges the scope of his resources. Our two supplements show a little of what can be done in this direction. We have here two entirely different renderings of the same subject—a view of the old General Post Office at St. Martins-le-Grand, London, during demolition, and both were engraved from the same *ordinary* photograph, and yet, while they differ so widely, each is in itself a perfectly artistic result. In the one, the treatment suggests a Whistler Nocturne in steelly blue black and grey, and the other gives with splendid effect our London evening glow and haze as seen and known by every artist.

Truly wonderful results and an achievement to be proud of, and it needs no prophetic vision to see that the new process is bound to go far—combining as it does the utilitarian and the artistic.



Carl Hentschel Ltd.,
London E.C.

H. W. Lis

"SIC TRANSIT

Photochrom Co., Ltd

SCOUTCRAFT

Inks by Shackell Edwards & Co., Ltd

THE STATUS OF THE STEREOTYPER IN ADVERTISEMENT PRODUCTION.

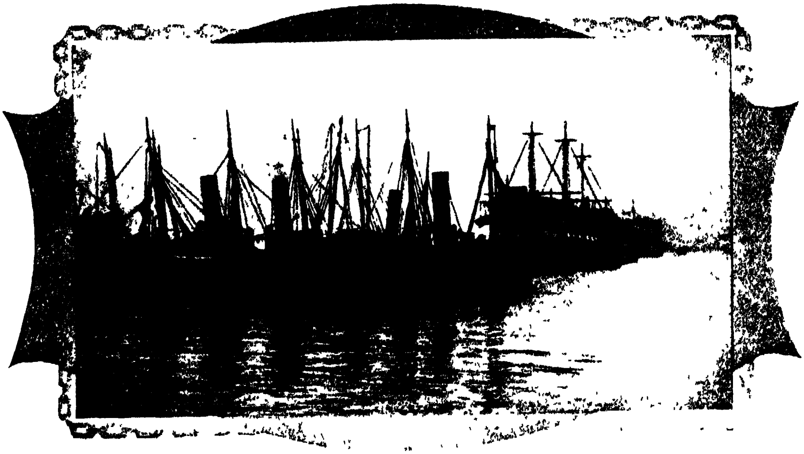
By T. J. KELLY

F. H. Smith & Co. Ernest Marriage, F.R.P.S. photo

A Modern Cave-dweller

"THEY order this matter better in France" remarked the father of English romance, and I write these following lines to point out sundry matters that should be bettered in London. Newspapers to-day are in keen competition for pictorial news and pictorial advertisement, the latter being imperative. Few newspapers could exist minus an advertising revenue. Large contracts for publicity are undertaken in the office and are not often matter for the printer's consideration. He has no responsibility for their composition or their attractiveness. The advertising contractor, usually, has the matter set up according to a schedule, and the forme is sent out for stereotyping, per estimate, at competitive prices. If not stereos, matrices are ordered. Hence it is, when the stereo or matrix is sent to a newspaper for insertion it is sent without proofing; the proofs are taken from the original forme of type or half-tone, with instructions for careful printing, etc., to ensure a good result. In many cases the stereo is really a bye-product, never planed, never finished, often a second remove from the original forme. The stereotyper of the newspaper in which these advertisements appear has all the responsibility and the blame, and when the final output is unsatisfactory, it is commonly because the type and also the illustrations are too shallow for reproduction. This is not an exaggerated statement, but the average experience. It is on these occasions that the status of the stereotyper is that of a Jonah. Most newspaper foundries have a metal mount casting-box, for casting stereo and zinco mounts, with two sets of gauges for pica and process plates. He is here handicapped, because few stereo ads. are of one thickness, varying, as they do, from pica to nonpareil. I plead for a uniform gauge for both stereo and zinco. Some process plates require a glazeboard to make them type-high, others are too thick to admit underlaying. Of course, a lathe or plane would remedy this, but space is valuable, and few foundries are equipped with either machine. The matrices sent out are all different. Some are made from the "Mix-on Moonshine Powder," and when cast exemplify the frog's honeymoon—it is an embrace of death. There are exceptions, *e.g.*, when a Dalziel stereo comes along in "all it's blushing honour." To remedy these fruitful sources of friction it is necessary to take the status of the stereotyper into serious consideration. Stereo, as a commercial asset in advertisement, does not obtain in America. They order "this matter better." The resources of the electrotypers are demanded in all conditions of advertisement duplication; hence the excellent results to be seen in American journals.

I would advise as an improvement in this matter, that deeper stereo moulds be taken, and from special made matrices; that a uniform pica plate be cast; that the finisher be given a chance to clear blocks and hard edges; that when half-tone illustrations are to be duplicated, an electro, though it cost more, is the better alternative. Expense is a serious objection, we know, but if there is an improvement to be made it must be by careful moulding and a more durable metal. A few years ago this metal question arose in a North Britain office where several daily and weekly journals are printed. The firm did not use a high-grade metal—they paid an average price, and had, I thought, a good metal. The office sent for new estimates, and they came along. There is always the "bag-man" to meet and compete with his cheap metal, with prices averaging from £25 to £28 per ton. I may say that the purchase of foundry material is seldom a matter for consultation with the stereotyper; his status is negligible there. If the reader will study the prices of metal to-day—tin, antimony and lead—he will know it is an impossibility to make a stereo metal of any use at the cheap rate of £25 per ton. Roughly, an average metal, per cwt., contains: Lead, 85¾ lbs., antimony, 16½ lbs., tin, 9¾ lbs. As prices rule to-day, this average stereo metal will cost, per ton, considerably *more than* £25, in nett exchange value, minus labour or the usual profit legitimately required. Cheap metals, when melted down, conceal beneath their lava-like surface an antimonial lead, useless for a printing plate, even of the shortest run, and if mixed in conjunction with a good metal, quite ruinous. It needs but little reflection to understand how delusive prices obtain a market; Pandora's casket did not contain the potent panaceas prescribed for the stereotyper of to-day. Everything to hand must be a novelty. His flong is useless; his moulding brush is out-of-date; he is being improved —"translated," as Falstaff said —we will wait and see. When a stereo is required of any depth and sharpness —whether half-tone, type or music—it is invariably done by the plaster process of moulding, a method a century old which still holds the premier position, no other method of moulding, so far, superseding it. The few foundries who retain the plaster process of stereotyping, whether by the old method or by the modern Dalziel development, have no cause to complain of lack of business. Unfortunately, these splendid stereo casts are not often used in newspaper advertisements. I finish by wishing my remarks may bring the advertisement manager, or contractor, to interest himself in stereo reproduction, to the betterment of himself, the advertiser and all concerned. "They order this matter better in France."



Knighton & Cutts   A. I. Hitchin, photo

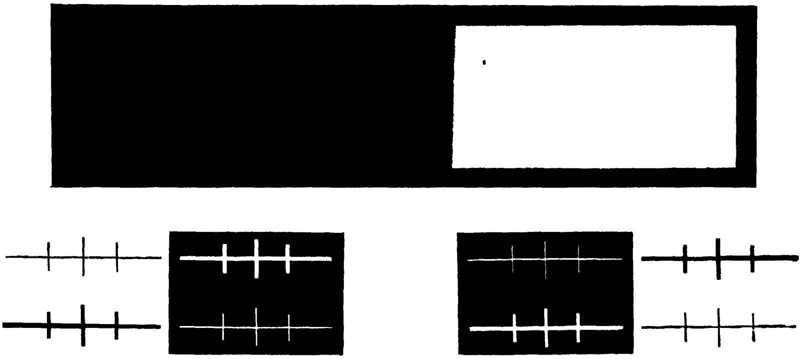
On the Tyne at North Shields.

TWO AIDS FOR THE THREE-COLOUR BLOCK MAKER.

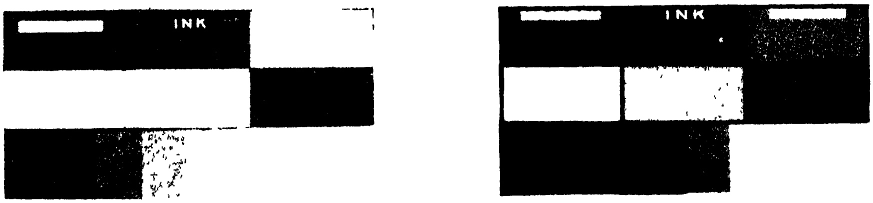
AMONG the difficulties confronting the three-colour worker are the easy identification of the respective negatives of a colour set, the certainty that the ratio of exposure is correct, the easy registration of the plates, to know the amount and direction of error in the inks used, to know the requisite quantity of ink of each colour to secure the correctly balanced grey, and to be able to repeat a proving with the same quantity of each ink on a subsequent occasion.

In order to overcome the first three difficulties, Messrs. Wratten and Wainwright, Ltd., have introduced their Copyboard Chart, which is reproduced as Fig. 1. It consists of a card, which has at the top solid patches of the complementary inks. These are for the purpose of identifying the negatives, for on each negative two should be shown as dense deposits of silver, while the other one should be clear glass; thus under the blue filter the negative will show the yellow patch as clear glass, while the magenta and blue green should be equally dense. If they do not photograph as dense as is desirable that is due to the imperfect colours of the inks; in any case they will photograph to give more density than the yellow patch. Under the green filter the red patch, and under the red filter the blue patch, will be clear glass, while the other two patches in each negative will be dense. If a correct yellow filter for the fourth printer is used, such as K3, all the patches will be about equally dense; the appearance of these patches on the negatives makes their identification easy and certain.

In order to determine that the ratio of the exposure is correct a graded strip of neutral grey pigmented gelatine is pasted on the centre of the card. This should appear equally dense on all three negatives; it may photograph thin, or dense, according to the exposure necessitated by the subject itself but it should be alike in all three negatives. Without this check operators sometimes imagine that one of their negatives must be under exposed, as owing to the nature of the colouring on the original it may photograph under one filter very differently from the way it photographs under the other two. It is assumed that the inks to be used are fairly correct; it may be found that to make the strip on one or more negatives a little more or less dense may compensate to some extent for



THE WRATTEN COPYBOARD CHART.



Yellow Printing

Red Printing

Blue Printing

The Complete Control

THE WRATTEN INK CONTROL.

TWO USEFUL AIDS TO THE COLOUR BLOCK WORKER

defects in the inks, but careful experiment will be required to determine this, generally the safe rule is to get this grey strip alike in all three negatives. On the bottom of the card are placed thick and thin crosses, these are to be used as register marks. The card is perforated, so that the various parts of it may be placed close to the copy where convenient in order not to use a larger plate than is necessary for the subject itself.

The remaining difficulties are met by the use of the Wratten Ink Control. This is a set of three-colour blocks which enables engravers or printers to see exactly the effect given by the three-colour inks they are using, and to enable them to re-prove the same blocks a second time, with the assurance that the colour and amount of ink used is exactly the same. The middle three solid patches of the finished result show the colour and weight of the inks separately, while the top three show the colours given by the inks when printed in solid patches in pairs, and the lower strip shows the black or grey produced by printing all three inks together in equal amounts. This strip is made up of eight grades going from black to a tint, and it is precisely the same on all three blocks, being made from the same original on one negative and etched on the same piece of metal. The strip will therefore receive ink from each colour, and as the dots are exactly alike, if the inks are correct in shade and in amount, the result should be a strip of neutral grey; if the strip is not neutral, then either the hue of one or more of the inks is at fault, or else the amount of one or more is incorrect. It is not yet possible to get inks absolutely correct, but by means of these blocks it can be seen at once in which direction they are faulty. The screen lines run at angles of 30 so that no moire pattern is produced. The ink control blocks should be put in the chase with the three colour blocks when they are being proved so that it can be seen that the correct amount of each ink is used in proving, and that the same amount is used when re-proving. If this is the case any difference in the subject is due to the fine etching and not to the inks.

The blocks are nickeloid electrotypes which will not wear out, mounted on metal to exact type height, so that there can be no variation due to warping of wood mounts.

The samples on the accompanying inset are printed with Penrose's Standard Trichromatic Inks.

E PLURIBUS UNUM.

By H. J. HAUGHTON, Buffalo, N.Y.

IT is both interesting and instructive to compare conditions in the engraving craft at the present time with conditions existing fifteen or sixteen years ago. In those good old days workmen were in constant employment; there was no such thing as an out-of-work list. Wages were good, £4, £5 and even £6 per week could be commanded by the average mechanic, the employer receiving 10d. to 1/6 per inch for his product.

When the Union was started, sometime in the late '90's, any prospect of hard times with small wages seemed very remote. The process of unionizing the men in London and vicinity was slow, as the cry seemed to be "that a good man can always get his price." So it used to be, but with no minimum wage agreement, and no restrictions on apprentices, any thoughtful man might have seen changes ahead. In those days any man who could show a good negative or a good proof was sure of a job, the employer not troubling whether the specimens were *bona fide* or merely borrowed for the occasion. Schools* and polytechnics turned out pseudo photo-engravers by the score, some to eventually make good, others to go down and out. New firms started up like mushrooms, very little attention was paid to costs, cuts in price being freely made in order to get work in a hurry. As a natural consequence expenses had to be cut, cheap men were substituted for skilled mechanics in all directions. As no apprentice regulations were in force, men and boys with a few months' experience descended on the labour market to swamp it. The outcome was disaster to all concerned, the employers claimed to be losing money, and the workmen received less wages. I notice many of the cheap labour firms are now only memories, while those who maintained a reputation for paying better wages are still on the map. The printers and publishers seem to have reaped all the profits. A proprietor of a large publishing house once informed me that it would not pay him to operate an engraving plant as he said he could get work done much cheaper than he could produce it, by setting one firm against another and spreading his work among many firms on a cut-price basis.

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* I am informed that of late years, the L.C.C. Schools of Engraving, etc., are particular to admit only *bona-fide* workmen, and that a representative of the Union acts with the Board of Directors. I hope this is so, and I only wish they had been more careful at the outset of their career.

Now looking back, it seems that this deplorable state of things could have been avoided. 1st, by an agreement among employers to keep up the prices, 2nd, by an association of employés to maintain a minimum wage scale, with a reasonable apprentice ratio, making the apprentices serve a sufficiently long term in order to become efficient

The employers certainly made more money receiving 1 - per inch with high wages, than at a later date at 4½d per inch with low wages

Again, the employer had no means of ascertaining what his competitors were paying their men, so he concluded to take all he possibly could out of his men, one way by reducing wages, and another way to require them to work overtime at ordinary rates A workman often figured to make up his wages to a reasonable figure by working overtime, and lots of it

Now the employing engravers in America have long recognised the principle of the minimum wage, also the limitation of apprentices. Likewise they recognise the importance of having an agreement among themselves which materially prevents price cutting with its attendant evils. Time and one-half is paid for overtime. In most localities there is a signed agreement between the employers and the local Union, and things generally work out harmoniously, strikes or lock-outs being of very rare occurrence.

Some employers have signed a "Closed Shop" agreement, which authorizes them to use the Union label. A majority of commercial engravers in this city (Buffalo, N.Y.) carry the label at the present time. The label is in no way compulsory, but the firms interested consider it a good business asset.

To those who do not know it, I may say that the Union label is a mark placed on manufactured goods, which carries a guarantee that such articles are manufactured under fair wage conditions. All Unions have labels cigar makers, shoe makers, garment workers, etc The label may be placed in any convenient position on goods offered for sale. When the public is sufficiently educated to insist on having the label on their purchases, then the days of the sweat shops are surely numbered

There are, of course, exemplary firms who employ some non-union men and pay good wages, but we have no guarantee of this without the label, it is a visible evidence which cannot be doubted Again, there are efficient non-union men who receive good wages, but they enjoy prosperity because the Union keeps prices up. Unfortunately these men cannot appreciate the fact that they are receiving charity, receiving benefits without paying anything in ; the employer must pay him the Union wage, else the workman would immediately join the Union to get the advance.

The presumption is, that open shops are working to down Unionism. Should they succeed, it's good-bye to good wages for the worker and good night prosperity for the employer.

The closed shop has this great advantage over its open sho in that it employs men who have at least been five years at the b whereas the open shop employer will grasp at every straw that his way.

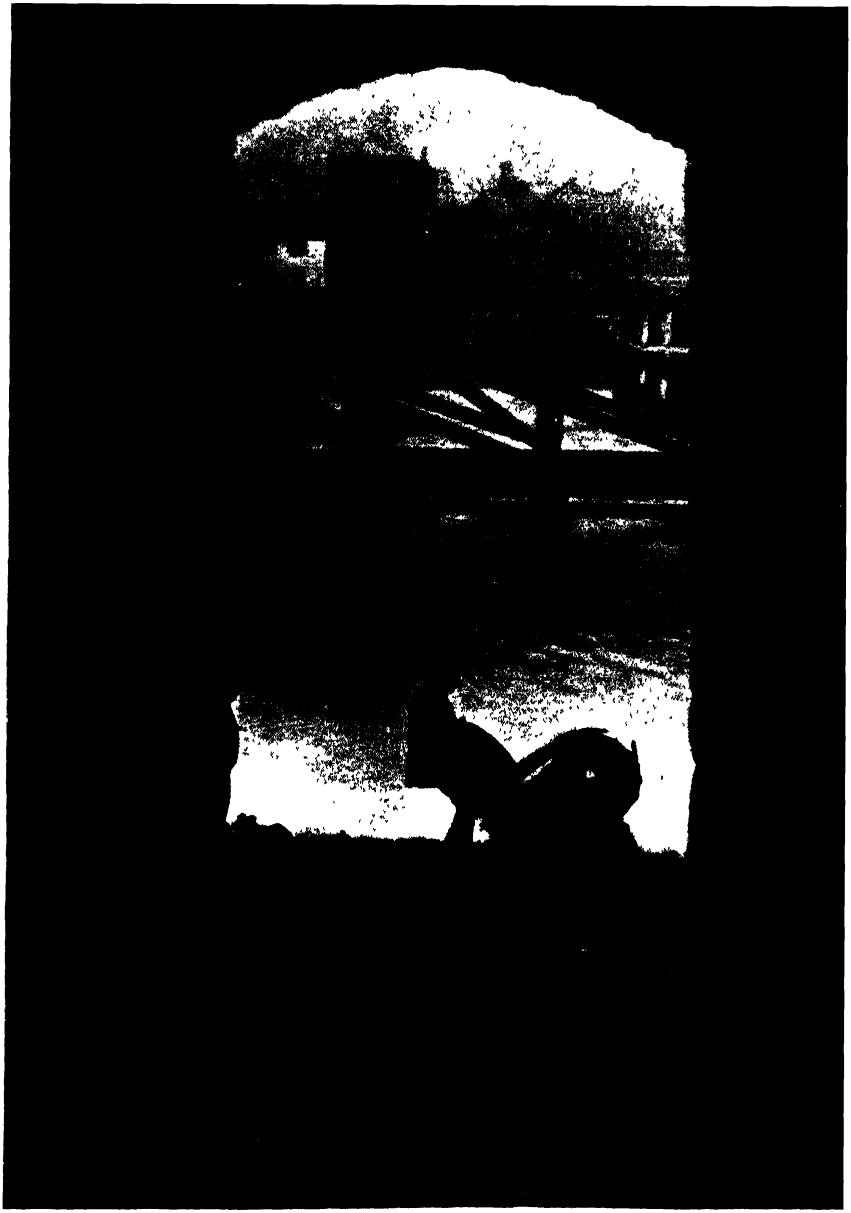
Perhaps, Mr. Editor, some of your readers will rememb Sweated-Industries Exhibition, which Mr. Cadbury introduced London public some few years ago, which showed in an appalling the miserable conditions and squalid surroundings of the unor workers of the East End, all going to show how the unprincipled ca can exploit the poor to satisfy his greed and avarice

In conclusion, I should like to urge all workers to demand Unio goods, whether half-tones, printing, clothing or personal effects. the sweat shop as a moral, social and industrial evil, or, to quote a librettist-

> "There, every mother's son
> Prepared to fight or fall is
> The enemy of one
> The enemy of all is

A. Bourne & Co. JAMES [illegible] photo

THE LAST LOAD



W & G. Baird, Ltd

A L Hitchin, ph

THE WATERMAN.

A REVOLUTION IN BANK-NOTE ENGRAVING.

By A. E. BAWTREE, F.R.P.S.

IN the last volume of the YEAR BOOK, under the heading of "A Short History of Bank Note Security Printing," I traced the creation, development and final failure of colour grounds in addition to making the first detailed statement, apart from the exhibit at the preceding R.P.S. exhibition, of my discovery which has led to the abandonment of intaglio plate printing for bank-notes on the part of those who make security the paramount consideration in the production of such documents. Space forbade the consideration of the peculiarities of the actual engraved work as favouring or hindering forgery. In fact the subject is so large a one that a whole volume of the YEAR BOOK might well be filled with its discussion; but I take the present opportunity of dealing with another portion of it.

The "Bawtreetype" process referred to at the conclusion of the previous article is the outcome of a serious study of the whole question of bank-note security and methods of forgery. This study resulted in the discovery of the following points:

1. That all work of pictorial nature, whether portraits, views, fancy corners, scrolls, etc., can be reproduced with ease by the forger because the very aim of the artist is to so subordinate the line character of his medium that to the ordinary person there is no apparent line structure at all. A human face, for example, must appear smooth and round, and only the engraver must be conscious of the fact that each line is in its place. Since the opinion of an engraver does not interest the forger he therefore reproduces such ornamental work in one of the many continuous tone processes, collotype, photogravure, mezzograph, half-tone or even, as I have done with great success on several occasions, ordinary autotype carbon prints.

2. That geometrical engraving cannot be reproduced successfully by continuous tone processes, because it is the actual line structure

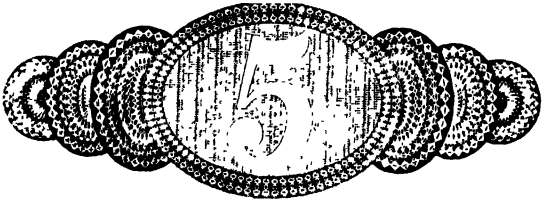


Fig 1

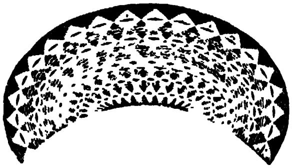


Fig 2

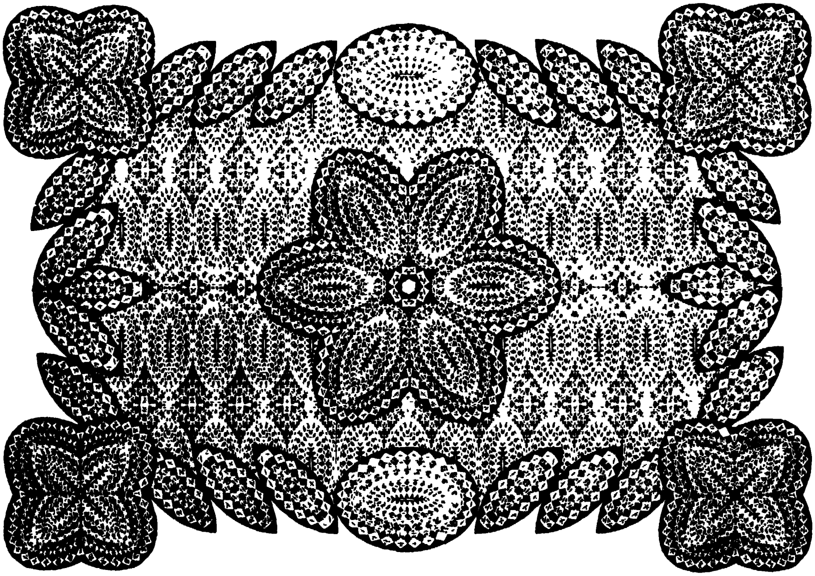


Fig 3

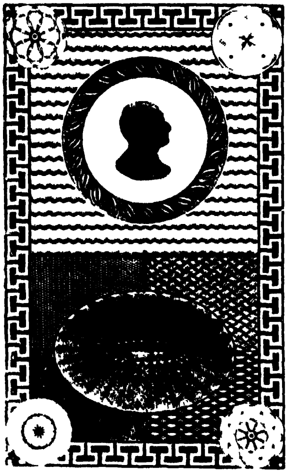
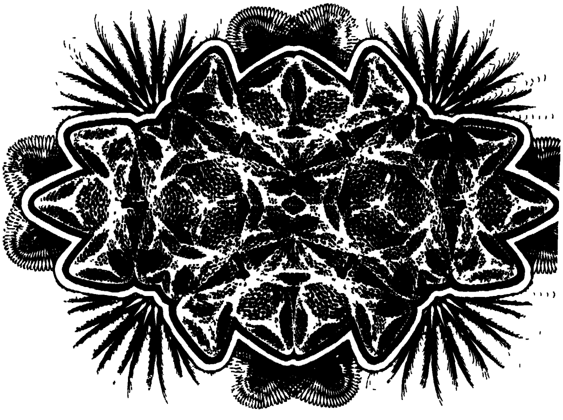
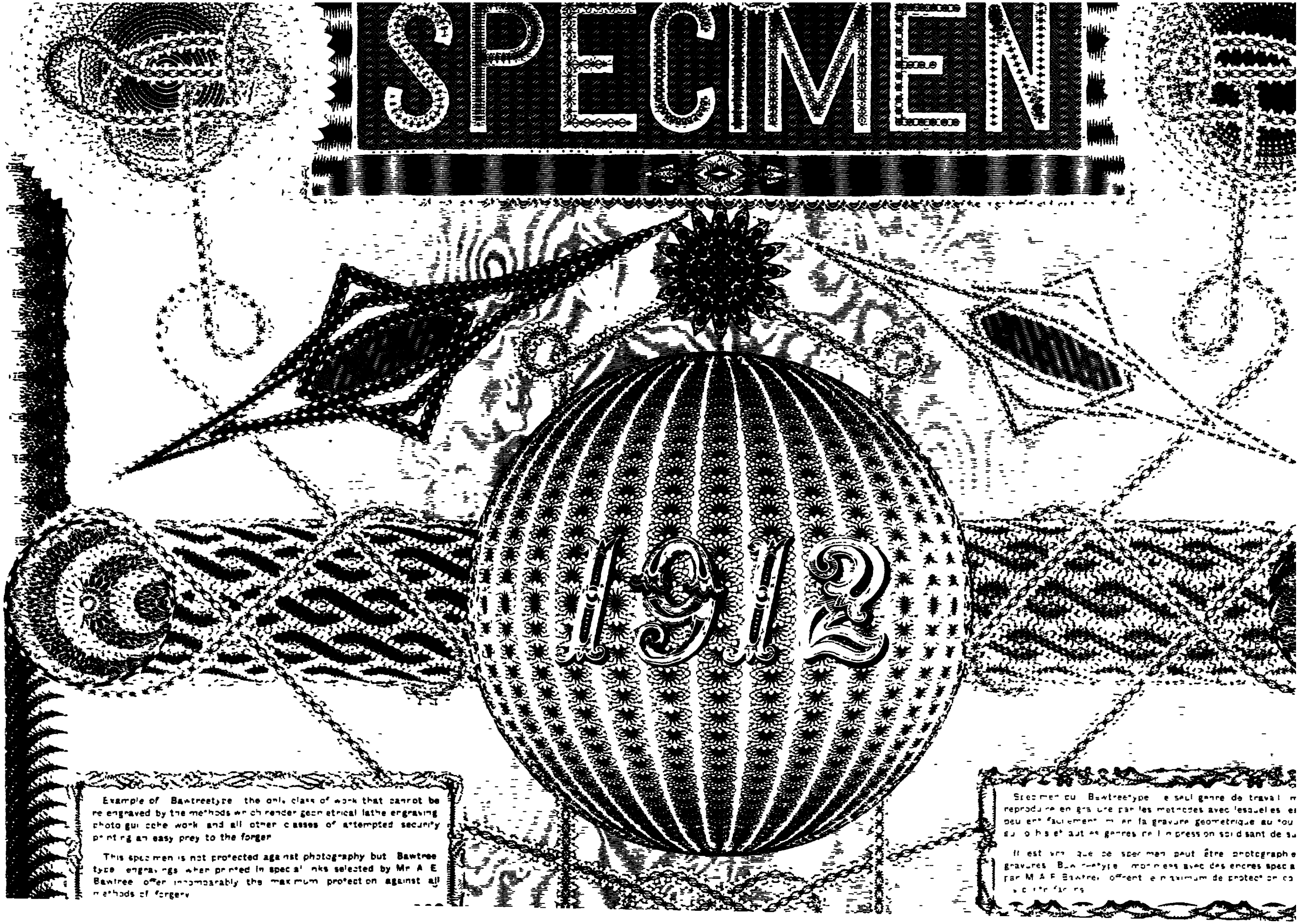


Fig 4



Fig



Example of Bawtreetype the only class of work that cannot be re-engraved by the methods which render geometrical lathe engraving photo guilloche work and all other classes of attempted security printing an easy prey to the forger

This specimen is not protected against photography but Bawtree type engravings when printed in special inks selected by Mr A E Bawtree offer incomparably the maximum protection against all methods of forgery

Specimen du Bawtreetype le seul genre de travail
reproduire en gravure par les méthodes avec lesquelles
peuvent facilement imiter la gravure géométrique au tou
guilloches et autres genres de l'impression soi-disant de s

Il est vrai que ce specimen peut être photographié
gravures Bawtreetype imprimées avec des encres spécia
par M A E Bawtree offrent le maximum de protection co
les contrefacteurs

which is emphasized and upon this the whole depends for its recognisability.

3. The work must not be made up of oft-repeated sections, because the forger will merely ink up a blue print of one of these in the manner described in Penrose's Pocket Book, put this down on to stone, pull a sufficient number of litho impressions and from these build up on a second blue print the whole composition. I once had to copy a really non-photographable tint on the front of a bank-note. This would have practically baffled me at the time, had it not been that the engraver had printed on the back of the same note a design in a strong readily photographable colour which contained the same component section. The back of the note is shown in fig. 1, the section required for the front in fig. 2, and the complete tint made up from this section by the photo-litho paste-up process in fig. 3. This method of forgery absolutely rules out of existence all work turned out by the transfer engraving process, the pentagraph and the recent photo-engraving machines, all of which produce designs by the repetition of sections, which operation the forger can, as shown, imitate quite well.

4. That commercial geometrical engraving machinery has remained at a standstill for generations past, with the result that the forger is as well equipped as the producer. A study of the records of forgery reveals the fact that the majority of bank-note frauds are perpetrated by re-engraving, not by photography. The engraving equipment of our forefathers consisted of the geometrical lathe, by which a continuous line could be traced in forms which were combinations of straight lines and circles, of the guilloche machine, or rose engine as it used to be known, by which these two motions were combined with purely arbitrary figures cut on the edges of wheels or rulers and of the ruling machine proper, which enabled lines either straight or irregular to be repeated at predetermined intervals. The only development of these machines that time has shown has been in the form of their commercial applications, an aspect of the case which does not trouble the forger. There is little which present-day engraving machinery can do which is not shown in fig. 4. The material for this was all engraved a century ago, and was kindly supplied to me, together with that for the construction of fig. 5, by Messrs. Holtzapffel & Co. The work shown in this latter fig. was engraved before 1873 and the latest developments of commercial bank-note engraving machinery, apart from the "Bawtreetype" plant, show no advance upon this whatever.

The photographic protection of geometrical engraving is a comparatively simple matter, but it is obvious that this protection serves little purpose when the forger can obtain all he wants, either by the photo-litho paste-up process or by re-engraving.

Bank-note work, therefore, in order to possess reasonable security, must conform to the following laws

1. That the work must be mainly geometrical in structure in order to avoid continuous tone photographic reproduction

2 The work must contain little or no repetition of sections, in order to defeat the photo-litho paste-up process

3 The character of this geometrical work must be unmistakably and completely different from that in which time and numerous text books have made the forger himself expert

4 Artistic composition must be obtained by means of geometrical work, not, as is the general custom, almost in spite of it

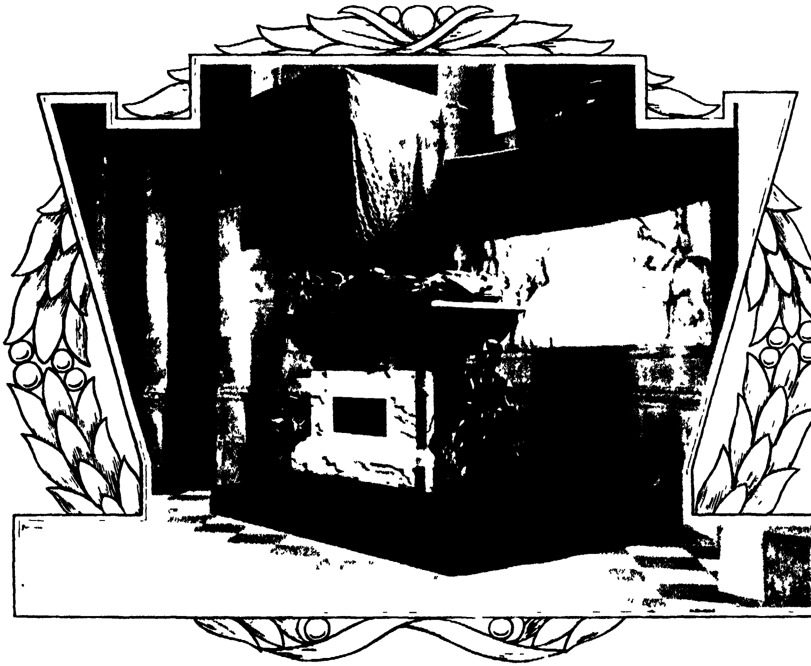
Accompanying this article is a full-page illustration of the work of the "Bawtreetype" process Space forbids a detailed description, but a study of this specimen will demonstrate the fact that it conforms to the above laws, to which all other methods of geometrical engraving most certainly do not

Another most important feature of the "Bawtreetype" process which no individual example can show is the fact that component designs which are used for security printing are never employed for purely ornamental work and *vice versa* An ordinary bank-note engraving firm will use a section one day on the easily photographed and purely ornamental border of a bond, while another they will incorporate the same section into a scientifically protected colour ground. Sometimes they are even foolish enough to show the section in both forms on the same document as in the example shown in figs 1 to 3 (Note - It is perhaps needless to say that these figures are not the actual test made for the banker in confidence, but are specially prepared for this article, the main working shown in fig 1 being taken from an old book on engraving)

In the very nature of the character of the work produced by the methods of engraving in vogue hitherto any distinct line of separation between ornamental and security work is quite impossible, and so long as the banker has his documents engraved by these methods the dangers referred to are ever with him On the other hand in the "Bawtreetype" process ornamental and security work are kept distinctly apart. A section which has once appeared upon one class has never appeared and will never do so in the other For example, no portion of the work of the 1912 specimen here shown will ever be incorporated in a piece of photographically protected work, because from a proof of this illustration the forger would get help in copying what was otherwise withheld from him by suitable methods of photographic protection

Who is there among us who would not give much to have his life over again with his present experience to enable him to avoid the follies and faults of the past ? The advent of the "Bawtreetype" process comes as near this desideratum as it is probable that anything in this world ever can It is utterly unfettered either by vested interests or by traditions of the past. With the experience of the past fully realized, a clean fresh start has been made in the bank-note industry, and it is certain that since what has already been done, with the process quite in its infancy, has worked a revolution in the production of monetary documents, the process will find when it attains maturity the whole bank note engraving world at its command.

All the illustrations to this article, including the large design, were engraved by Mr Bawtree on Intaglio plates for lithographic printing They have been engraved in the form of surface blocks by Messrs Vaus & Crampton, Ltd



Marshall Engraving Co

W. H A Fincham, photo

Monument to Lord Leighton, St Paul's Cathedral

FLASHING.

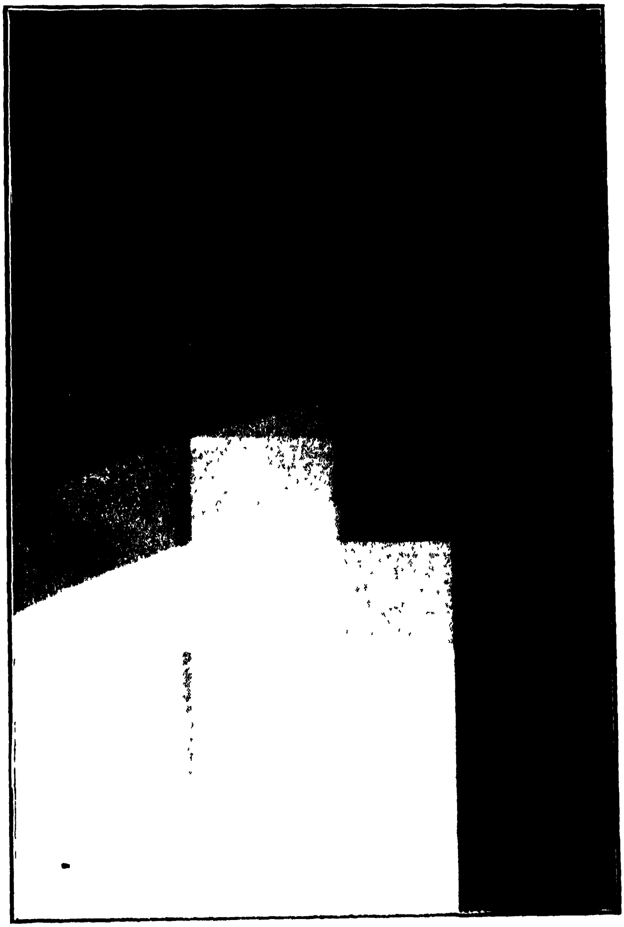
By G. C. LAWS.

WHETHER it is desirable or not to give a short exposure to white paper when making screen negatives, or as it is generally described, "to flash," it is quite certain that this practice has become almost universal, owing to the speeding up in block production, the number of negatives an operator is expected to produce in a day does not allow an exposure long enough to get printing dots in the shadows of dark copies, or to give time to the careful work required to render the shadow details without flashing. A correctly timed flash exposure does not produce very harmful results, though its influence is greater than is generally thought, as the accompanying block shows.

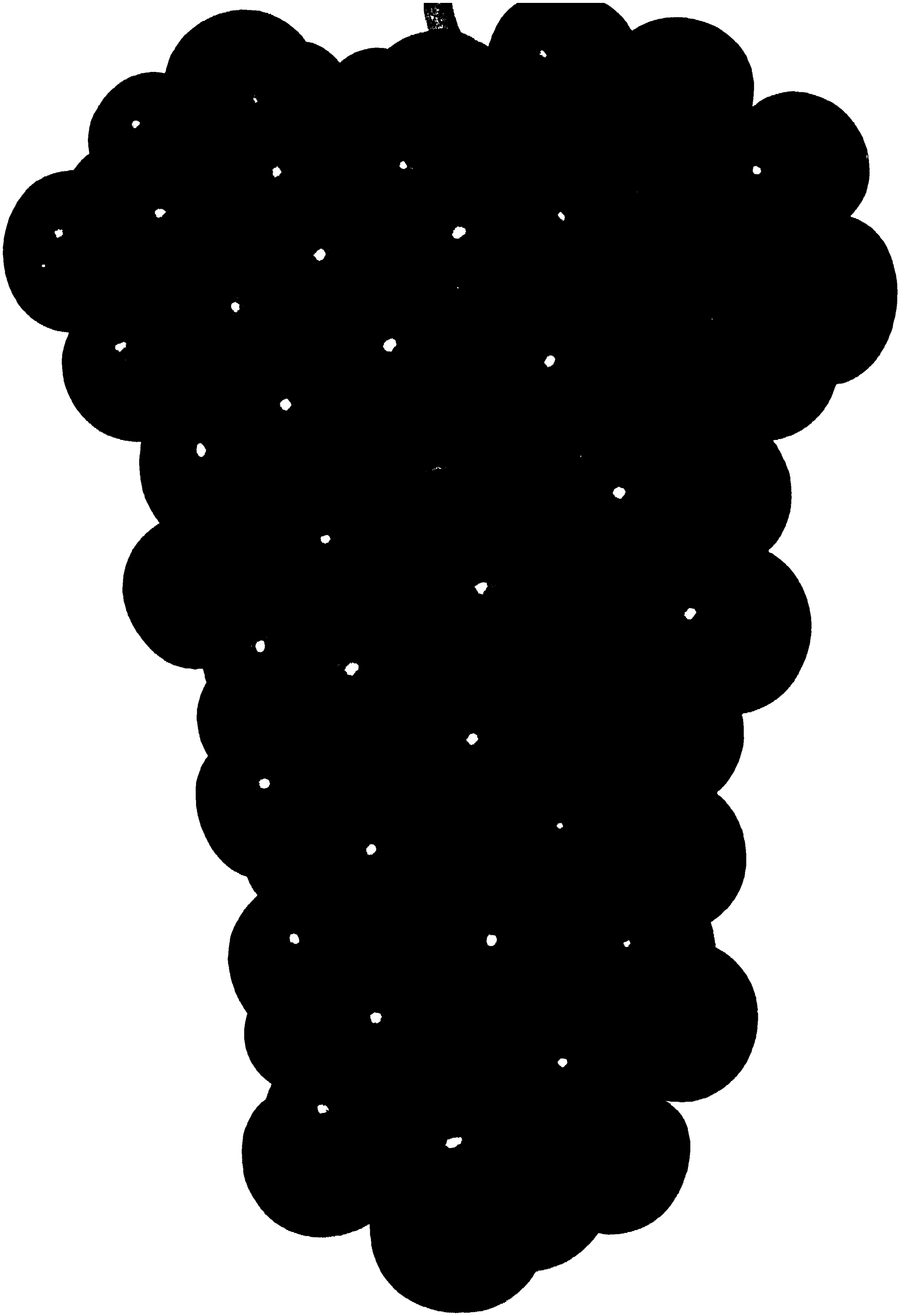
The usual method appears to be to use the smallest aperture of the iris diaphragm, without allowing in any way for the differences in the F/value of the stop at the various extensions of the camera. It will readily be seen that the usual rough estimate of the difference in exposure required say for same size and half size may cause such an error as will destroy quite two or three shades of tone in the dark shadows, by making them a uniform dark grey, or black, which will depend upon the amount of reducing given to the negative by the operator to make it acceptable to the etcher, if the etcher tries to make right the defects of the negative it must be purely by guess-work, since there can be no indication on his plate of these shadow tones.

A little study of the accompanying illustration will show what the time of the flash should be. The original was a glossy bromide print from a tint negative made in the H and D apparatus and represents a curved scale of tones from a good black to white, the right-hand side was covered with a piece of black velvet, which is reproduced as a solid; the centre strip shows the effect of flashing both on the copy and the velvet, and the left side shows the copy without flashing. The narrow dark strip is the shadow cast by the Bristol board used for flashing, and should be ignored when making a comparison of the tones.

The plate used was the Penrose Graphic plate developed five minutes in pyro-soda, and not intensified or reduced, the total exposure was thirty-two seconds at F/90, this was found sufficient to give a very small dot in the shadows of the bromide, just enough to print, but in the velvet it was too weak and came solid, in the centre flashing strip, the exposures are 1, 2, 4, 8, 16, 32 seconds and show clearly that even one second's exposure has produced a decided greying of the black, and that for the purpose of getting a printing dot, this exposure should not be exceed under the conditions of lighting, speed of plate, and F ratio of the sto



this exposure will vary with every change in the lighting, or plate s but is worth more careful study than it usually gets if the best re are desired



THE
JUNIOR TECHNICAL SCHOOL.

By A. J. BULL, L.C.C. School of Photo-Engraving

The British Photo Engraving Co

M. R. Tozer photo

In Memory

It has long been realized that an elementary education finishing at the age of fourteen is insufficient to enable even the ordinary workman to make the most of his opportunities. This need led to the establishment of evening continuation schools and also of secondary schools and other schools of their type for continuing the general education to the age of sixteen or seventeen. There are, however, comparatively few parents who can afford to give their boys the advantage of a secondary education.

The London County Council has for some years been developing another type of school, the Trade Schools. These may now be considered to have passed the experimental stage and to be an established form of education. The Board of Education has fostered these schools and they are now formally recognised under the name of Junior Technical Schools.

The object of the Junior Technical School is to give boys a preliminary training, which shall fit them for life in the workshop, while at the same time care is taken that their general education is not neglected. The Board of Education is very rightly insisting that gymnastics shall be included in the curriculum and that opportunity be provided for organized games.

As worked at present there are two types of these schools, those in which the technical education is of a general character, and the more special schools where the whole training is given with the object of preparing the boys for some one craft. In London there are special trade schools for engineering, silver-smithing, photo-engraving, and for professional cooks and waiters. These schools for particular trades have a much greater efficiency than the general schools, because there is no difficulty in giving the boys instruction which will be useful to them afterwards in the workshop. Such schools can however, only find sufficient support in large towns where industries of some magnitude are concentrated. Small towns have, of necessity, to rest content with schools of so general a character that the instruction serves as a preparation for any trade operations.

One factor which has affected the formation of schools of this type is the comparative failure of the apprenticeship system in certain trades, where owing to a great division of labour it is almost impossible to train an apprentice in all the operations involved. The division of labour has taken place to great extent in photo-engraving, where a block may pass through five or six different hands before it is finished, and several of these operations are sufficiently complicated to constitute almost distinct trades, as far as the workers are concerned.

A Junior Technical School for photo-engravers has been organized at Bolt Court by the Education Committee of the L.C.C., with a two years' course for boys just leaving school. The trade instruction includes wet collodion negative making, and line and half-tone etching. From previous experience in this direction it has been found that it is possible to give a fairly intelligent boy a good idea of all the operations of block-making, and while a boy may do some quite good work during his training, it does not give him that skill, which only experience can impart.

The advantage that it gives to the boy is that he gets an all-round knowledge of the work and has some chance to choose the particular branch to which he is most adapted.

In addition to trade work the instruction at Bolt Court comprises English and arithmetic, elementary chemistry and physics relating to the work, gymnastics and drawing. Therefore when the boys leave at sixteen they have received a much better education than would have been the case if they had gone straight to the shops at fourteen. It is the hope of those concerned in the work that this educational scheme will have a beneficial effect upon the Trade.

THE BOROUGH PRINTING CLASSES.

THE Borough Polytechnic claims the distinction of being the first technical institute in the country to open practical jobwork classes for compositors, and Mr. William H. Slater, the responsible instructor of these very popular and successful classes, has this year completed twenty-one years' service in conducting the same. This anniversary was made the occasion for the presentation to Mr. Slater of an illuminated address and a marble and bronze clock, as a mark of the esteem in which he is held. The original plant installed at the opening of the Institute in 1892 was certainly very small—a cabinet of brevier with some brass rule, cut to ems, for teaching tablework, but it has gradually been added to and both composing and machine work are now completely taught. It was owing to a very stimulating offer of prizes when the classes started for the best displayed advertisement during the Session, that the collection of work resulting (nineteen examples in all, demy 8vo.) was bound up, and the result was the first "Borough Booklet of Students' Work," 1893-94. That production was the first collection of compositor students' work issued in the Kingdom, and became the forerunner of a score or so of handsome portfolios that are each year sent out from classes that are now established in most of the big printing centres. These portfolios are an admirable means of showing the class of instruction given and the progress made from year to year. The first Borough Booklet was issued at the close of the classes about the 1st of May, and it is the boast of the teachers that every issue has been completed and in the hands of the binder by the time the City and Guilds Examinations are held and the classes are closed. Whereas the first Booklet consisted of only 19 demy-8vo. pages, each with but one working, the current issue, No. 20, is a handsome volume of dy. 4to. containing 66 leaves, many with two jobs and many with three workings, and together with a 12 pp. bookwork supplement, represented about 35,000 runs, all of which were done within the current Session and outside instruction hours.

The twenty-one years of Mr. Slater's duties as printing instructor at the Borough Polytechnic may be divided up into two sections: the first of ten years when he worked with his colleague and friend, Mr. Wm. Davies, and the second of eleven, when he held the position of responsible instructor, with Mr Arthur C. Edwards (Typographical Designing) and Mr. J. B. Gotts (Honours). In 1906, on the latter gentleman resigning, Mr. F. G. Shepard took charge of the Honours Section, and on account of the large numbers of students attending the practical classes, an assistant practical instructor was appointed in the person of Mr W. E. Wicks.

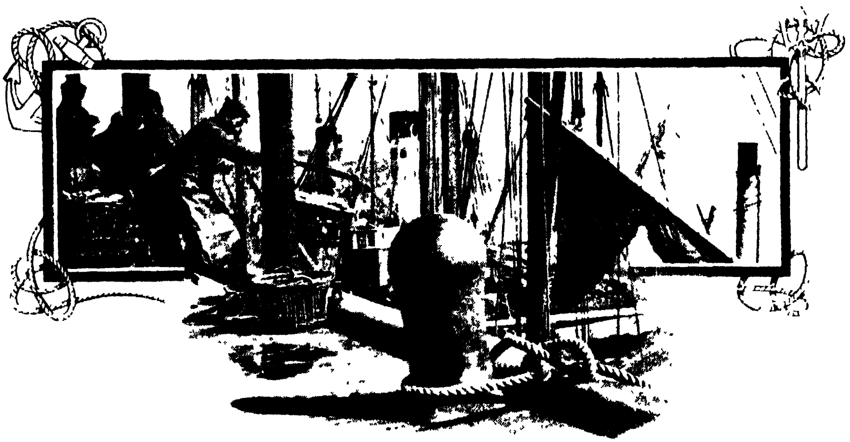
During this second section, whilst under Mr. Slater's control, the Borough Printing Classes have increased both in numbers and popularity

Mr W. H. Slater

It was as a result of his successive appeals to the Principal, that Mr. Millis opened a class (both practical and theoretical) for machine printers, with Mr. D. J. Evans as instructor (the duties being at present undertaken by Mr J. Hodgson Hunter); the Afternoon Classes for Apprentice Compositors were increased from two to four per week; the compositors' practical classes from two to three per week; the institution of a theory class exclusively for journeymen compositors; the inauguration of Day

Practical Classes for Compositors (Apprentices and Journeymen) from 2 till 5 p.m.; and lastly the formation of an additional class for Honours Students on the subject of "Advertisement Writing and Planning," which is to begin at the opening of the present Session. The number of classes held at the Borough when Mr. Slater took up the responsibility were six per week (four theory and two practical); there are now no fewer than 16 per week (eight theory and eight practical).

The class of instruction in both branches (Composing and Machine) is based on practical workshop requirements and the total elimination of all unnecessary time-wasting methods, this is shown in each issue of the Borough Booklet, which has now reached its 20th number, and is acknowledged to be the most practical and up-to-date example of students' work issued from any Printing School. On the theory side Mr. Slater believes in being "thorough" in every subject he touches upon, and the students benefit by the fact that a great deal of the instruction is given them by means of dictation, so that with the least care a student's note-book may become his text-book, always ready for his personal reference. Every alternate week a class examination is held, which enables students not only to express their ideas in their own words on the spur of the moment, but afterwards of hearing the matter re-stated, an expert answer given to each question, and of receiving their papers properly corrected in red ink.



The Tone Photo Engraving Co K F Bishop photo

Landing the Catch

DEVELOPMENT IN PREPARING PRINTING SURFACES.

By C ALISON KER

AS a subject which may prove of interest to the numberless readers of the Year Book I have pleasure in mentioning a few experiments made by my brother and self in connection with process engraving, and the very important development resulting from them, which has opened up an entirely new method in the production of printing surfaces.

From previous experience in other studies, we knew that it was necessary to confine our attention to one particular subject, and, as we were both trained textile engravers, we made this branch a speciality. However, a fair knowledge of the general trade acquired by us at every opportunity proved of great service.

Our initial experiment took place nearly twenty years ago, when we successfully applied the Wash-Out Carbon process to the engraving of Copper rollers. By this method, we executed a large number of designs in single colours, but the trade was not large enough, and we tried several plans in order to extend our operations.

After overcoming successfully the different solubilities of acid-resisting varnishes we experimented in colour work, including line, stipple and screen work, for surface and intaglio engraving. This new departure was opportune, as it enabled us to meet the demands of our home and colonial markets during the portrait flag boom of 1900-2, when quick delivery was a necessity. We were now able to engrave in the open shop without the aid of the film system, and this is a point which has been of great importance. The engraving was done direct from the sketch or pattern in broad daylight, and proved to be a decided advance. The colours were patched by lithographers in large sheets and transferred to the rollers, but the fit or register by this method was sometimes very disappointing, and the time required to perform the operation made it quite impossible to defeat the usual procedure in certain classes of colour work. The need for some direct and more reliable system was imperative, and we felt that we must give the matter prompt attention before our efforts would meet with due recognition.

To overcome the difficulty we turned our thoughts on some mechanical arrangement or machine whereby we could produce on a cylinder all the repeats necessary in the formation of a design After many failures, our efforts were rewarded and we were able to prepare the colours apportioned to each cylinder simultaneously, by one operation, and also to repeat them as many times as desired, in a very quick and efficient manner.

Our claim for recognition was soon tested, as we were asked to demonstrate the advantages of the machine to the technical advisers of one of the largest textile printing companies in Britain, who, after due consideration and comparison with other methods, decided to adopt it in their works.

Since then, in our leisure moments, we have developed the system still further in order to meet the requirements of the general printing trade, and we have received every assistance from an expert lithographer, who is also manager of a large printing branch where the latest machines in litho and offset printing are in use.

The first tests submitted by us were in one, two and three colours and they gave great satisfaction. They were set up by the machine on the principle of the invention for textile work, which was explained very fully in the previous issue of the Year Book, and later in some of the trade journals The designs were repeated on the rollers more than a dozen times, in the same tone and strength, and in perfect register; the two and three colours were produced simultaneously All the intermediate work of transferring and patching, etc, was dispensed with and the process was reduced to a simple mechanical movement.

It has been acknowledged by all who have gone into this method that an important saving must follow where it is adopted We can operate on transfer paper, seamless rollers for litho. printing and metal plates for offset printing, also copper cylinders and curved plates for intaglio and surface printing. Uniformity of repeats can be given direct from the master plate in any number of colours for all the above classes

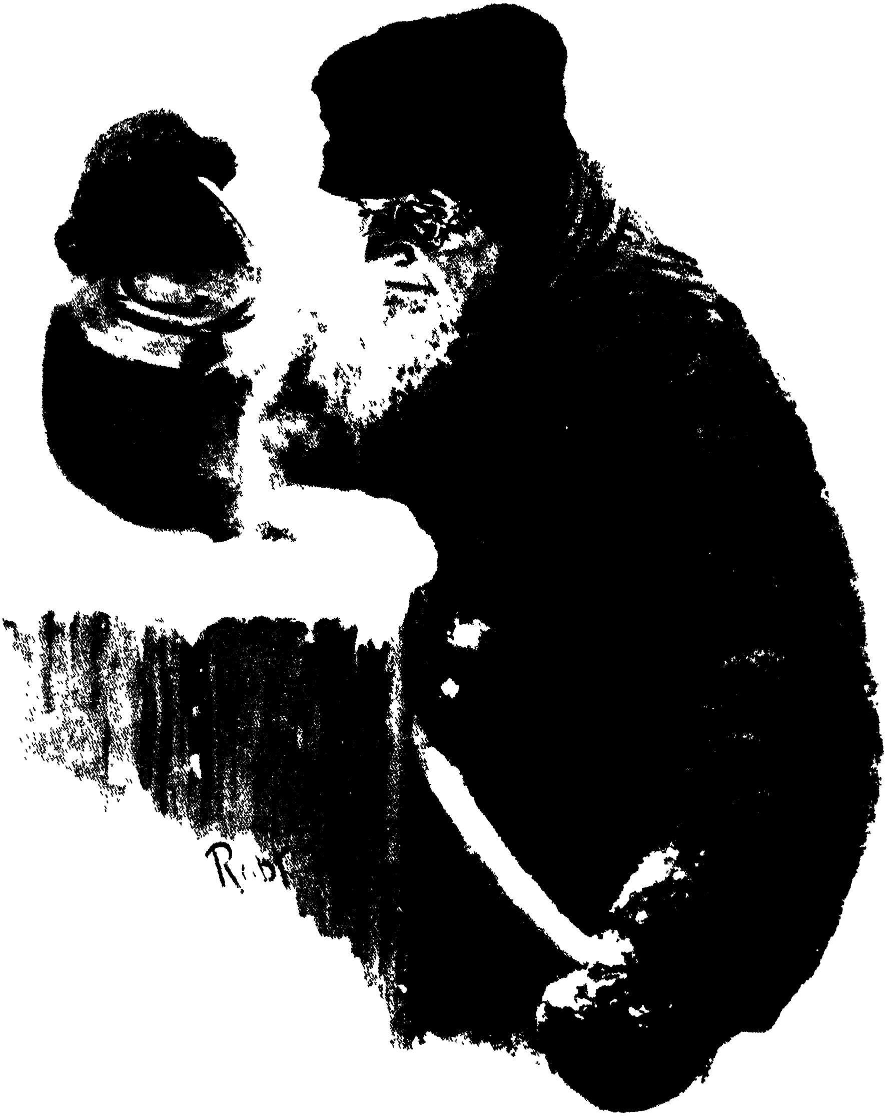
After many years of experience we have come to the conclusion that photography, after the master copy is made, in certain classes of work, can be carried too far, and as proof of this assertion our important deal was only made when we were able to engrave designs under the ordinary conditions existing in the workshop By our method, the work can be done by the present tradesmen, without photography, except for the master copy and no new trade requires to be introduced

As far as the book printing trade is concerned we are outsiders and should not wish to be considered dogmatic in any way, but after visiting several large printing houses and seeing the great advance made in all branches of printing and printing machinery, we think there is room for our invention, which will enable the transferrer, etc., to reduce the work very considerably. The present method of transferring and patching is, we understand, the only system in the litho and allied trades that has not been improved upon by modern methods, and we are confident that our machine, which requires no specialist to operate, will be eagerly welcomed.

If any reader of my article wishes more information regarding this subject I have no doubt that the editor, who has always been very kind in giving us every assistance, will be pleased to furnish my address.

The Johnston Engraving Co. Jas. J. Tyler, photo.

Meal-time



GATCHEL & MANNING,
PHILADELPHIA

Courtesy of THE CURTIS PUBLISHING CO
PHILADELPHIA, U S A

THAWING OUT THE PUMP

From half tone in two colours

ABORTIVE ADVERTISING.

By W. H. SMITH

If you wish in this world to advance,
   Your merits you're bound to enhance
You must stir it and stump it,
   And blow your own trumpet
Or, trust me, you haven't a chance

"*Ruddigore*" W. S. GILBERT

A TRUMPETER, if he would ensure that his efforts will prove as remunerative as he could wish, should take pains to render a harmoniously pleasant and attractive performance.

The triteness of our quotation, borrowed from that past-master in fathoming the foibles, and gauging the tastes of the public generally, will not be questioned, but one ventures to think that the amplification covered by the opening sentence following the quotation is necessary; for what shall it benefit the most strenuous trumpeter who ever trumpeted if his music fails to tickle the ear of his audience? And, should he be unwise or untutored to the extent of producing discord, the resultant harvest will surely amount to kicks instead of the hoped for ha'pence.

THE BRITISH PHOTO-ENGRAVING CO

M. R. TOZER, photo

LIGHTS OF THE SLUM

The foregoing remarks are prompted by the consideration generally of the advertising pages of some leading and influential trade papers, not a cursorily casual examination by an uninterested by-passer, but the scrutiny of one seeking enlightenment and information from the sources referred to.

Ostensibly, the essential feature in advertising at all should be to obtain advantages that would not accrue in the absence of such publicity; so, in view of the very high rates prevailing where space in any reputable medium is concerned, it follows that the utmost care would be exercised to provide, at least, an ordinarily tempting bait.

The Irish Photo Engraving Co

Ellis & Walery photo

Miss Jean Aylwin

In the great majority of cases, however, the predominating rule is exactly opposite to that which we should expect to find, for on reference to the advertising pages of many leading trade organs, one turns over page after page of bald and almost meaningless announcements, the mediocrity of which actually repels and annoys the would-be student.

But the grievance does not end here even, the same journals can be consulted issue after issue, whether published weekly, fortnightly or monthly, and in an overwhelming number of cases it is found that there is no attempt to vary the announcement—sometimes for years—by so much as a comma.

If the manufacturer or vendor of specific commodities considers he is so well-known that the mere announcement of his name and address will suffice, surely the directories, wherein *so much* appears gratuitously, and—in these days of public libraries—with an enormously larger circle of consultants than the most widely read trade paper could ever aspire to reach, should furnish all he needs. But it is of course a fallacy to imagine that any concern can afford to rest on its laurels, all things mundane must be either progressive or retrogressive, hence the notion existent in the dense mind that publicity *is* necessary and the infliction on the world at large of the pointless pages of publicity matter referred to.

Surely this is a state of affairs that for the benefit of all concerned in the commercial world should have attention and a remedy applied, because the interests at stake are by no means trifling.

In the realms of high finance it is now candidly admitted "That the days of the bald dry advertisements of public issues are over. The public want more particulars and more interesting reading than they contain*," so if we find this fact so candidly admitted amongst a class of people seeking to invest (or spend) their money, with how much greater force must the same dictum apply when trying to arouse interest amongst those not keen on being interested ?

Let it not be imagined that these remarks are prompted with a view to advertising publicity firms in general or in particular, for whilst fully recognising the unquestionably useful service such organizations offer, it is understood that their good office appeals more to the business that depends absolutely upon the expenditure of vast sums of money, rather than to those whose advertising is only one of many important features. It would be sheer impertinence to offer advice in general to a Beecham or a Pears, but such as these are the exceptions that waive the rule.

So much for the malady ; it remains to form a diagnosis and prescribe a remedy.

To diagnose in this case is, with slight reflection, not difficult , the patient (the advertiser) is attempting something beyond the capacity of his constitution. It is the old case of the principal or his overworked deputy trying to accomplish too much , for in the great majority of cases it will be found that the drafting of advertising matter falls to the lot of a man who cannot and should not devote time or thought to consideration of such matters, so he has to hurriedly produce some sort of copy which naturally lacks point, originality and interest.

Men possessing the necessary ability for stating in print in a forceful and intelligent manner the claims for consideration of any reputable manufacturer or merchant, are not lacking, but the trouble that is, generally speaking, the dominating spirit in the average house of business cannot or will not see the necessity for employing a special man for this very special purpose and that ample time is permitted to allow of the work being creditably done

Every other important function in a well-ordered business is entrusted to one more or less qualified and trained for the position whether it be the works manager, the secretary, the buyer, the sales manager or the traveller , but any one of these – in their own particular sphere very able men – is considered capable of taking on, as a sort of side line, the business of the publicity department ; so it is not really remarkable that an impressive advertisement is only located with about the same frequency as an oasis in the desert.

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* *London Mail*, May 24th, 1913

Yes, the trumpet must be blown; it must be blown with skill; the air must be attractive; or in default, the trumpeter, be he working ever so lustily, will fail to gather in the shekels that could and would reward the efforts of a capable musician manipulated by a shrewd impresario

Irish Photo Engraving Co Ellis & Walery, photo

SCENE FROM "A SCRAPE O' THE PEN

The Acme Tone Engraving Co., Ltd. J. West & Son, photo.

THE CHILDREN'S FRIEND

THE FIRST CENTURY OF PHOTO-ENGRAVING.

By LEO HAGEDOORN, Amsterdam.

ALTHOUGH it is rather difficult to fix a date for the celebration of the centenary of photo-engraving, we may assume at the present moment that we cannot be very far off that event, and we may possibly have passed it already.

The first experiments with photo-engraving, we may take it, were made long before the Frenchman Louis Jacques Daguerre succeeded in 1838 in giving form to the idea of the camera image, by means of his iodized silver plates.

MARSHALL ENGRAVING CO J. E. JUKES, photo

LITTLE BOY BLUE

Perhaps an exact historical investigation would give interesting details of the work of the two Englishmen, Sir Humphrey Davy and Thomas Wedgwood, but it may be taken for granted that Joseph Nicéphore Nièpce made experiments as early as 1813 with a kind of photo-lithography. Of the same pioneer in process matters we find it stated that he made experiments about 1817 with the light-sensitive properties of Guaicum gum, and he had a really successful result in 1824, when the intrepid investigator limited his efforts to the mineral asphaltum, which

Daguerre

Niepce

Fox Talbot

Scott Archer

yet plays such an important part in process work, and which was at that time already commonly used by painters and engravers. An important example of these experiments is, according to various authors* in the Museum in Chalons sur Saône, which was the birthplace of Nièpce.

It is the portrait of Cardinal d'Amboise, and this is certainly known to the readers of the Year Book from the many reproductions which have been made of it and which have appeared as illustrations for the many articles in periodicals dealing with the invention of photography.

According to Nièpce's son, Isidore, the above reproductions were made as follows.

He coated his tin plates with a varnish of bitumen, dissolved in oil of lavender or oil of dippel, and when dry placed them under engravings and exposed them to light, afterwards developing the image with a mixture of the oil of lavender and white petroleum, thus obtaining plates which showed the design in bare metal on a varnished ground, so that it could be etched and yield impressions in the copper-plate press.

On this information it can, therefore, be concluded that here the basis was laid for photogravure as it is now known, for reproduction in intaglio. This is very remarkable, because after about a century the most important modification in the graphic arts moves again around the same subject, *viz.*, that of intaglio printing. The fine qualities of this method in its present state of perfection make it fairly easy to foretell that this process will be the process of the future, especially now that complete installations for rotary photogravure can be supplied. Did we not see, for instance, a little while ago the announcement of "Velogravure," from the publishers of this Year Book? This, of course, will soon increase the popularity of illustration by means of plate printing and, once generally practised, it will do away to a great extent with letterpress printing.

However primitive they were, these first experiments, where the influence of light took the place of the manual work of the engraver, the etcher or others, must be placed to the credit of Nièpce. Two important discoveries, the above-mentioned one of Daguerre and the one of the Scotchman Mungo Ponton, put forward new principles for photo-mechanical reproduction. Ponton, according to a paper of the Royal Society of Scottish Artists, published in 1839,† had pointed out the chemical change of glue containing bichromate by the influence of light action upon it. In this respect not a little importance must be attached

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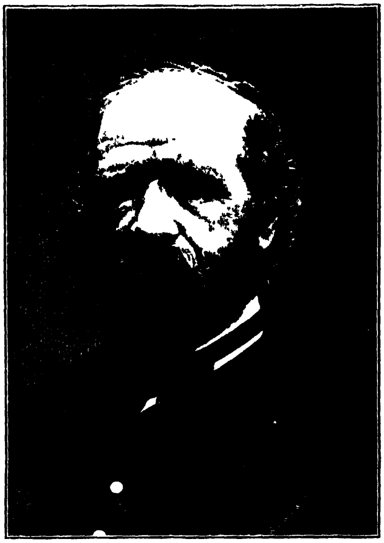
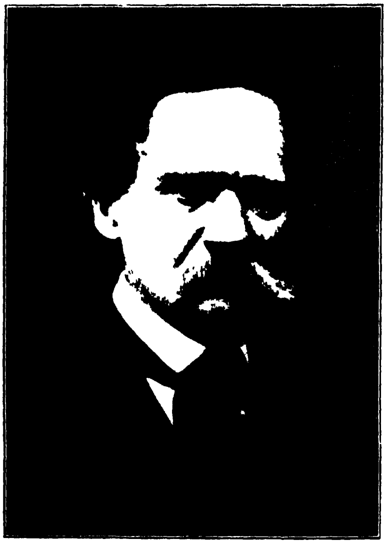
* See amongst others William Gamble's Historical Review, in "Line Photo-Engraving."

† A Manual by Dr. Eder says that Ponton made use of information obtained by Vauquelin in 1798, and Prof. Suckow in 1832 also stated the light-sensitiveness of chrome-salts.

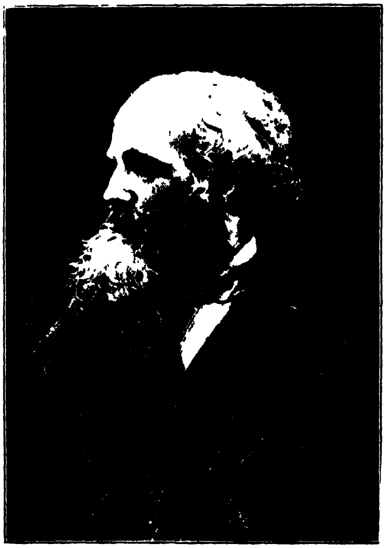
MUNGO PONTON



ALPHONSE LOUIS POITEVIN.



PAUL PRETSCH



CLARK MAXWELL

to what was discovered by the great and far-seeing worker Fox Talbot. Not only did he take photographs at about the same time as Daguerre—the so-called "Calotypes"—but he particularly pointed the way to the photographic negative, which puts us in a position to print an unlimited number of positive images. According to our view it is quite right to place his invention on a higher plane than that of Daguerre.

The most important thing, however, which was accomplished by Talbot from the point of view of the photo-engraver were his etchings for plate printing (about 1850) in which, besides the application of the idea of making prints by means of albumen containing bichromate, use was made for the first time of screens—the valuable media for converting continuous tones into points and dots of varying size.

CARDINAL D'AMBOISE.

Talbot's screens were, however, very primitive, being open fabrics, such as crêpe, but his great merit was in having found the idea or principle.

Talbot's negatives for his "Calotypes" consisted of sheets of transparent paper which had been made light-sensitive by means of silver salts. It goes without saying that in this respect also improvements were soon made.

It was again a Nièpce (Nièpce de St. Victor), a cousin of Nicéphore Nièpce, who suggested making these on glass, whilst the London sculptor, Scott Archer, is considered the inventor of the collodion negative.

The Viennese Paul Pretsch must be credited with the invention of the photographic print made light-sensitive by means of bichromate, which he applied in connection with electrotyping (1854). He made use of gelatine which, as is well known, when properly treated, gives a remarkable relief. By pressing the relief into wax and by making this electrically conductive, he obtained an excellent matrix, this process being still in use occasionally for postage stamps, etc., in order to obtain the shell in a galvanic way for the same. In connection with the same way of working, *viz.*, electrography, we must also mention the names of the Bohemian painter and illustrator Karl Kliç,* and especially of the

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*A portrait of Karl Kliç appears on page 111 in this volume

WALTER B. WOODBURY

G. MEISENBACH

LOUIS E. LEVY

MAX LEVY.

rightly renowned Woodbury. It may be presumed to be well known that the latter pressed a gelatine relief into soft lead (about 1864), forming a mould in which, by means of warm gelatine mixed with pigment, impressions were obtained which, so far as fineness and difference in tones are concerned, are not less beautiful than our present-day photographs. Besides the making of photographs, however, which is less important to us, the lead plate of Woodbury offered a good means for the making of printing plates by electrotyping. In this case the grain was brought about by a special treatment with powdered glass.

In another way the reproduction was prepared for the printing press in bichromated gelatine, through which the often-applied and delicate process of collotype originated. The invention of this process is attributed to Alphonse Louis Poitevin, and he must also be mentioned in connection with the invention of the carbon process.

As prominent technical men, who, although not finding a new direction, nevertheless did much with regard to improving the working methods, the Parisian lithographer, Gillot, must be mentioned. He gained a reputation by his method for transferring to metal and line etching which, without much alteration, is still being practised in French establishments. It consists in rolling up the line plates for the different etchings consecutively with rollers of somewhat different elasticity, one being a flannel roller. This process is markedly different from the so-called Austrian method and the American four-ways powdering method with dragon's blood.

A son of Gillot simplified matters greatly in 1872 by making the metal plates themselves sensitive with bichromated albumen, instead of making transfers to same, which up to that time were generally used in practice. The transfer of prints in greasy ink or asphalt on gelatinized paper was troublesome work, which often gave rise to very lengthy retouching. Some improvement in the paper itself has been attributed to the Dutchman, Asscher, whilst an employé of the Topographical Bureau in The Hague, named Eckstein, secured some fame by a special application of photo-lithography.

Only in the eighties the workers in photo-mechanical processes came into possession of more perfected screens.

Probably working along the lines followed by Talbot were Berchtold, Eggloffstein, Ives and particularly Meisenbach, who indicated the method to be eventually followed successfully. Finally, the brothers Louis and Max Levy, in Chicago, were the first ones to manufacture really good screens.

Many amongst us will remember the older kind of screen and the difficulties connected with same. The way in which they were made was always more or less mysterious. First of all, a good many impressions were taken from a stone or an intaglio copper plate ruled with lines in one direction. These impressions were joined up one to the other, and from the original thus made a photographic negative was obtained. This negative served as a screen and had to be turned during the exposure in order to obtain the second set of lines in the half-tone negative. It goes without saying that one very seldom succeeded in getting the two sets of lines uniform, and especially when using the rather imperfect cameras of that time The image was often out of focus, as both screen and collodionized glass plate had to be put in the same dark slide.

Following this period many process firms started ruling their own screens, but the imperfect ruling machines used for this made it very often a hopeless undertaking Day and night they had to go on ruling lines as the least stop at once meant a disturbance in the regularity of the lines Then there was the difficulty of the black layer, through which the lines became either brittle or sticky, and many other troubles, through which the labour of many days and nights was often spoilt.

The process engraver of our times has nothing to do with all these troubles. He only orders his screens of a certain ruling from a trustworthy firm and can be sure they are all right

As regards colour reproduction, the successive stages are more difficult to follow In helio and photogravure remarkable results were obtained fairly early, but it was not here so much a matter of technical skill, nor of the photo-mechanical work which led to success, as this was obtained by a clever combination of different kinds of ink, printed at one time from the same plate It would be more correct to speak here of a manual process than of a mechanical one.

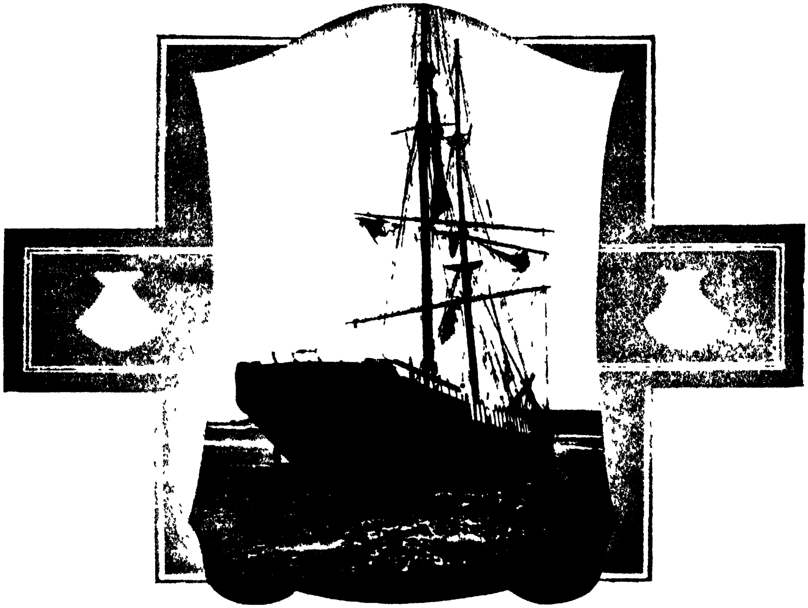
In colour collotype good results have only been obtained during the last ten years or so, especially from old paintings and illuminated designs

In colour lithography, the most applied of printing processes, practica use can only be said to have started in about 1885, although a long time before that typographical colour prints were made by the firms of Goupil in Paris, Angerer and Goschl, in Vienna, and others. Also the work of the American, Ives, before that time should be mentioned. The principles of our indirect colour reproductions obtained by means o selection plates were described, however, during the earliest period o photography. The honour of this is due to Becquerel, Seebeck, Poitevin Maxwell, Sanger Shepherd, von Hübl, Eder, Valenta, Vidal, Vogel, Albert Joly, Lumière and many others.

The many improvements of later years as to material, plates and emulsions of purer and more panchromatic quantities, better printing inks, filters (the absorbing power of which is in relative proportion to th spectral colours covering the same), carbons for arc lamps (which themselves give the right coloured light), and other things will all contribut towards making colour printing a more definite mechanical process and thereby do away with the costly and extensive retouching or fine etching

Anyway its value will increase considerably by reducing hand-work to as small a minimum as possible, as it is of great value for an artist to see his works reproduced without the personal touches of a colour etcher

Finally, a suggestion. Seeing that in the year 1913 throughout the musical world the centenary of the birth of Richard Wagner has been celebrated, and that in 1906 the tercentenary of Rembrandt's birth was celebrated in such a sympathetic way, would it not be possible for the thousands connected with the graphic arts to celebrate by some suitable commemorative ceremony the works of Niépce, Talbot and other pioneers of this important branch of the arts of civilization? It would no doubt create a new interest in historical incidents and facts, increase the popularity of our trade, and last, but not least, would create new relations amongst the process workers of the different countries. Perhaps Mr. Gamble will allow this matter to be discussed in "Process Work."



Knighton & Cullis

E. A. Williams, photo

Stranded.

ADVERTISING A MOTOR CAR.

By A. E. ASTINGTON.

Advt Manager, The Austin Motor Co., Ltd

IN these days of strenuous competition the advertising department of any large business must, by virtue of its calling, make its presence felt wherever and everywhere it can. The day has long since departed when advertising was largely looked upon as a means adopted by newspapers and other journals of filling their pages and their coffers at one and the same time. Gone, too, has the day when catalogues and printing matter were considered to be items of little importance. At that time it could be given to any printer, so long as he had a fount of type, some rules, and a few fearsome ornaments with which to fill up his blanks. There was never much likelihood of artistic merit taking a part in the work, in fact, printing was not the art that it undoubtedly is now-a-days. The value of the catalogue, so far as its utility was concerned, was all too frequently judged by its bulk; its appearance, as an additional attraction to its contents, was not considered at all.

The advent of the men who specialized in advertising soon brought improvement. The printer had for some time been aware that all was not as it should be, but his *clientèle* were hard to convince that artistic printing cost very little more and would be of considerably more value to him. However, with the inevitable association of the advertiser and the printer, an entirely different feeling was engendered. Their collaboration has brought us the present-day catalogues - publications which are, for the most part, printed and illustrated in a manner as pleasing as it is useful.

With the coming of the motor car industry and its modern business organizations, it was obvious that large demands would be made on the printer, and it is no exaggeration to say that there are many printing houses who owe a good deal of their prosperity to the industry and its allied trades, and who, on the other hand, have considerably helped forward the age of "Good printing" in which we live.

There are several features of motor car advertising which are of more than passing interest. For the purposes of this article, however, it is proposed to deal with two of the principal ones, and, in passing, it is necessary to mention that the publications of only those manufacturers who build a car of the first rank are considered in the views expressed hereinafter.

The two sections to be dealt with are :—

(1) Catalogues.
(2) Press advertising.

It is obvious that with so many automobile manufacturers in the field there must be a great diversity of opinion as to what does constitute the ideal catalogue. Some houses go no further than to issue a fly-circular, which gives illustrations and prices of the cars, with a short statement of their principal equipment Others give a more or less detailed specification and include illustrations of the stripped chassis and also of the complete cars. Again, there are catalogues which, in addition to giving these particulars, also include copies of testimonials, racing performances, awards and the like what one might term comprehensive catalogues. They would be issued by firms who, in all probability, have only the one publication The single catalogue, on the one hand, has much to recommend it, inasmuch as it means an obvious saving in postage, and, if concise, it facilitates the customer's work in arriving at some sort of idea as to the type of car and equipment that he may require. On the other hand, it would not be altogether suitable in those cases where both the chassis and bodywork are built on the premises and offered either separately or as a complete car There are many carriage-builders up and down the country who have, of necessity, marched with the times, and now build the coachwork for motor cars Many of them hold agencies for various makes of chassis, upon which they erect bodywork of more or less artistic merit and practicability It is for such houses that catalogues illustrating and describing the chassis only are issued . it is one reason why the Austin Motor Company have always issued separate lists for chassis and carriage work of all their larger models. In this connection it should be noted that the Austin Company include in their chassis catalogue, coachbuilder's dimensions diagrams of each of their models.

The Company exercise very great care in the compilation and subsequent production of their catalogues, in view of the fact that each one is considered to be a "Salesman," and intended to be an attractive one at that Over-elaboration in text and embellishment is avoided, they are meant to be business propositions, not picture books. In regard to the latter it is not intended to disparage the special albums that are issued from time to time. They have a limited sphere of usefulness and are expensive exceptions to the rule. The large Continental firms are responsible for the greater number of such editions-de-luxe, very beautiful productions, but it is doubtful whether they can be considered to have more "pull" than their less ornate contemporaries.

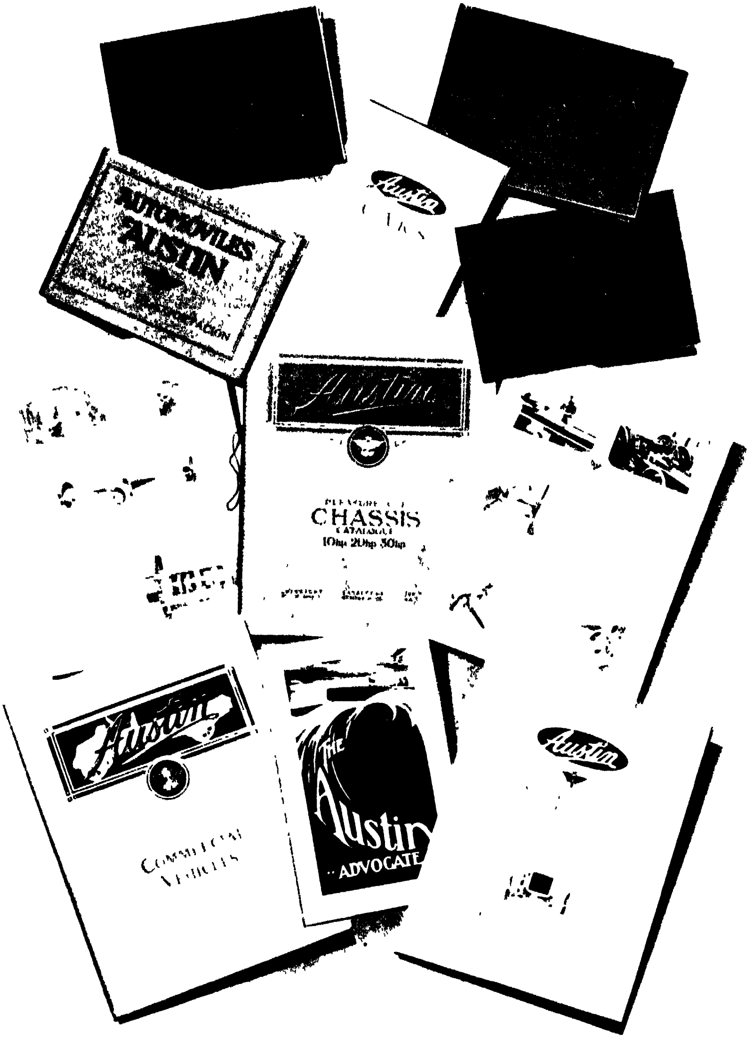
In the compilation of the chassis catalogue, the fundamental principles to be observed are conciseness, comprehensiveness, simplicity of terms and good illustrations. Each of these qualifications can be rendered in various ways. In the Austin catalogue these attributes are embodied in a manner that is without exaggeration. The details of the specifications are given as lucidly as possible, without any tendency to over-statement or verbosity, whilst the illustrations are carefully selected and produced in the best possible manner. To simplify its usefulness, all the principal measurements, with the prices of each chassis, departures from standard specifications and terms of business, are grouped together; then follows the specification and finally the coach-builder's dimensions of chassis already mentioned.

The size of the catalogue is a matter for individual judgment, so far as general lay-out, handiness, postage, etc., is concerned. We ourselves favour a demi-quarto (8×11½) size, which gives plenty of space without the catalogue being unwieldy. At one time we had in circulation published in consideration of the cost of postage — a reduced fac-simile edition of our two chief lists. They were found to be a great success, but were ultimately dropped in favour of abridged lists, on account of the extra expense of production entailed.

It is obviously necessary at all times to keep catalogues up-to-date. In consequence, and to avoid wastage, a careful estimate of one's requirements is necessary.

Marshall Engraving Co. J. E. Jukes, photo

The Rosary



WALLACE & GILLETT, LTD

A SELECTION OF CATALOGUES PRINTED FOR
THE AUSTIN MOTOR CO., LTD

A STARTLING INCREASE

THE AUSTIN MOTOR CO. LTD

POWER without waste

£800

THE AUSTIN MOTOR COMPANY LTD

The BRITISH INTERNATIONAL TROPHY

WON AGAIN BY MAPLE LEAF IV

ENGINED by the AUSTIN MOTOR CO LIMITED

A Triumph for Austin Workmanship

Wallace & Gillett, Ltd

A Selection of Advertisements Issued by
The Austin Motor Co., Ltd

200B

The carriage catalogue is our next consideration. It is issued separately in order that a greater number of carriages may be illustrated and for the other reasons already given. Sufficient justice could not be done to our carriage department were they to be embodied with the chassis edition, and, furthermore, an extremely bulky list would result, which we consider it advantageous to avoid. There are other considerations too, the chief one being the preference of a large number of our *clientèle* for the arrangement adopted by us. The illustrations are kept as large as possible and each carriage is quoted for the different chassis upon which it can be used. Being designers and builders of our own bodywork, the many advantages of buying the complete car from us are gone into at length by way of a foreword, or introduction, to the catalogue. Views of our carriage department shops and equipment are included.

For the convenience of clients abroad, the separate catalogue for carriage and chassis is not used, and we issue in their stead a combined abridged list of demi-oblong octavo (7¾×5¾), in which we include f.o.b. and packing charges at the chief home ports. This catalogue, called our export edition, is issued in various languages, including French, German, Russian, Portuguese, Spanish and Italian; a comprehensive list, which at least shows that we are thorough in our exploitation of foreign markets. Each is bound in a different coloured cover to distinguish it from its fellows.

Other publications include fac-simile testimonials, bound up in book-form, each sheet printed on tinted paper approximating to the original tint, and in some cases creases are put into them to give them still more the appearance of the originals. The effect of the latter is a considerable improvement. We also issue copies of testimonials, which serve an excellent purpose.

Handbooks of instructions for each chassis, with lubricating charts, price lists of spare parts for each model, a list of agents at home and abroad, and other minor pamphlets, bring the number of different publications issued by the advertising department to over twenty, a not inconsiderable item of expenditure, but all of some value in procuring and consolidating business.

Before this section is completed, a word must be said concerning the Austin house organ, "The Advocate," edited by H. Welsh-Lee, which is issued to Austin owners the world over. By its means, our clients are kept in touch with us, obtaining items of considerable assistance to them in the running of their cars, details of the latest improvements in the chassis and bodywork, articles on travel in various lands, and others of a humorous type, with plenty of illustrations, diagrams, etc. The circulation, which practically covers the globe, is upwards of 5,000 copies per month, and its power as an advertising medium is unquestionable. An edition in French is also issued.

PRESS ADVERTISING

It is often said with truth that "The looker-on sees most of the game." The saying certainly applies to the business of advertising a motor car. The "game" is carried on to an extent which few realize who are not in the know. The amount spent on "advertising" certain makes of cars—taking the word in its broadest meaning—is enormous. In this respect we have reason to believe that our appropriation is less than any other concern of equal importance. We rely to a greater degree than others upon the intrinsic merits of the car being its best advertisement.

It is our intention to deal only with the "Press" side of advertising, the description of the other sections would take up too much space here, but might be dealt with on a subsequent occasion.

Press advertising can be sub-divided into three heads:

(a) Technical press.
(b) Illustrated weekly and monthly journals.
(c) Daily press.

(a) In this section the advertiser has a number of influential journals, of which at least one is taken by motor car owners. In consequence it provides media of much too powerful a selling force to be ignored. It is in this section only that one of necessity comes up against all one's competitors. The healthy rivalry thus engendered is consequently the means of influencing one's "copy" to a very appreciable extent. We would submit that the ideal matter for such journals is of the argumentative type and can be more technical than that issued to the other sections. With the mass of advertisement pages carried by the chief technical journals it is obvious that the position of the announcement is of paramount importance; the extra cost that is entailed is always well repaid by the greater publicity secured. In preference to small spaces weekly, throughout the year, we favour whole pages covering certain specified periods. In this manner expenditure is carefully regulated to obtain the greatest possible benefit: a necessary corollary when the appropriation is limited.

(b) The illustrated weeklies and monthlies are a distinct advantage, covering, as they do, a wider field and a very important one. Here one is making one's appeal to a class of potential buyers, who, if not already owners, can be influenced in the right direction by judicious advertising. The great value of this section lies in the permanency of the advertisement, which often brings in enquiries long after the date imprinted on the issue. Their circulation abroad is a further factor for the advertiser's consideration, and again, they draw the attention of readers who have no liking for the technical journal. In proportion to our appropriation we make as much use as we can of these media and we are satisfied that they are business persuaders to a marked degree

(c) The advertising of motor cars in the daily press is an expensive matter, but given the proper appeal, the results always justify the expenditure. Anyone who has faith in advertising must of necessity use this section, for in it one has a powerful selling force that cannot be ignored. The press generally have been an enormous factor in propagating the cult of the motor, but there is one fly in the ointment—one little grumble that one must make—and that is in regard to the editorial columns contributed by the "Motoring Editor," and in this connection it should be pointed out to the uninitiated, that editorials or "write-ups" are a *quid pro quo* for advertisement space. With a few notable exceptions the matter published serves no other useful purpose than that of filling up space. The most flagrant balderdash is used time after time, until one wonders why the readers do not rise up and cry, halt! There is, undoubtedly, plenty of room for improvement, and it is due, not only to the readers, but to the advertisers as well, that these editorials should at least be written intelligently and with the idea of the subject being educational and helpful.

In conclusion, it should be mentioned that it is impossible to cover the extensive ramifications of the subject in the space available. Only generalities have, therefore, been dealt with. The theme is full of interest and provides a very fascinating study for those who are exercised in their minds as to the methods employed by the advertising department of a large manufacturing concern such as the Austin Motor Company.

W. & G. Baird Ltd. A. W. Goodman, photo

THREE LITTLE MAIDS FROM SCHOOL

A FEW IMPORTANT POINTS IN COMMERCIAL PHOTOGRAPHY.

By W. J. SMITH,

Chief Assistant Instructor, L.C.C. School of Photo-Engraving.

THE increasing demand for photographic illustrations to assist in the buying or selling of commercial articles is very apparent, and as the demand increases so must there be a corresponding demand for specially trained workers. The training necessary to become a really successful operator should embody an organized course of study, so that all working conditions can be as far as possible "standardized." Standardization is a most important consideration in modern work and is the outcome of study coupled with observation, commonsense and adaptability. The principles that govern the work of a commercial photographer are a mixture of science, art and business capacity.

Should the worker himself have to obtain his customers, he must realize the fact that when dealing with a man of business time represents money, therefore be brief, but well to the point, exercise tact (not bounce) and try and adapt yourself to the mannerism of each customer. The commercial client usually requires quite a different class of reproduction from the artistic one; the former like the general public, appreciates bright, telling results that show the selling qualities of his goods, the artistic client appreciating photographs that are full of gradation, softness and show all artistic value the original possesses. "Advertisement is the life of commercialism" therefore the advertising side of the department must receive careful consideration, and tastefully mounted specimens of the different qualities of work should be displayed so as to command attention. The artistic principles are applied when arranging the articles to be photographed, see that the point of view and lighting are adjusted so as to display them to the best advantage. The combined artistic and scientific principles must be used when selecting and determining the focus of lens to be employed for a given subject. Undoubtedly the best and most pleasing photographs are those taken with long-focus lenses, 12 in. on a ½-plate, 16 in. to 18 in. on a 1/1-plate; this especially applies when reproducing objects of a round nature and where there is considerable modelling. Short-focus lenses flatten out modelling and roundness, and elongate objects near the edge of the plate, but sometimes it is necessary to use them, therefore the point of view must be arranged so as to minimise as much as possible any distortion they appear to give.

Long-focus lenses of the anastigmat type are expensive but the greater speed obtained when exposing and the higher quality negatives soon repay the original outlay. Many photographers who possess a good modern lens still adhere to the old-fashioned method of using small stops (*f*/45 or 64); the lens, however would work quite as well and even better at *f*/16 or *f*/22, with an economy of exposure. In the pre-anastigmat days it was necessary to stop down to eliminate the defects from which the lenses suffered; this ancient habit still attaches itself to some present-day photographers although they possess a modern lens of first-class quality. Stop down to secure depth of focus, this often being obtained at *f*/16 with an anastigmat working at *f*/6. Cinematograph pictures are good examples of what excellent work can be produced by using large stops.

In object work photography, such as the reproduction of articles for catalogue illustrations, the lighting must be carefully adjusted to show the quality or texture of the original. The difference between an ordinary piece of calico and silk is the texture, and this must be indicated in the reproduction. The difference between an ordinary picture and one by a gifted artist is the quality the genius of the artist has enabled him to impart to the picture, and the successful commercial photographer will be the one who recognises what essential points his photographs must show. The various varieties of dry plates and printing papers should be studied in order that they may be intelligently selected for the work in hand, this latter remark especially applies to colour-sensitive plates and filters. The ignorance displayed in this direction is very noticeable, also in the selection of the developer and in the subsequent development. Standardize all negatives so that they are the correct contrast for the printing processes employed and the right density for the light source used. This is a very important point to remember, especially when a considerable number of prints are required. The pyro developer is undoubtedly the most economical and best developer for the general run of commercial work, as the deposit of silver given is very light-resisting. The negatives must not, however, be over-developed, but kept on the thin side, which will enable prints to be obtained very quickly. For black and white copying and where extreme density and contrast is required, hydrokinone is to be preferred, but this developer is very sensitive to changes of temperature and will almost refuse to work below 57° Fahr. This latter fact should be remembered when metol-hydroquinone is employed for bromide paper or plate development, as metol will work at a much lower temperature than hydroquinone, the result being negatives of no printing value or prints of a weak grey colour. Glycin is a developer that deserves more attention, being particularly useful when making colour negatives, provided the exposures have been full and the temperature of working room above 60° Fahr. The temperature of the dark-room is a very important point, and if development is to be standardized must be about 60° Fahr.

A thermometer is as necessary to consult before development as an actinometer before exposure. Regard the latitude of the plate as divided into three parts—short exposure, normal exposure and full exposure. For example, short exposure on flat subjects, or when working against a soft light, and forced development will frequently produce a bright negative. Normal exposure and varying times of development will flatten or brighten contrast. Full exposure gives different densities according to the time of development. Short development will give soft negatives from contrasty subjects. Subjects that are likely to show halation will come under the third division, but development must be curtailed.

All these items have to be considered before it is possible to standardize them, and they can only be intelligently worked after careful study and application. Remember, the more knowledge acquired by systematic study, coupled with the power to deduce from that knowledge and skilfully applied in practice constitutes the stock-in trade of a clever workman.

SHEFFIELD TELEGRAPH A. McKAY photo

RUMBLING BRIDGE.

The ORGANISED PRODUCTION *of* COMMERCIAL ART

By MARCUS HEBER SMITH

NORFOLK STUDIO

HOW TO SAVE MONEY IN BUYING DESIGNS AND GET SATISFACTORY WORK.

ORGANISATION and efficiency are the demand of modern business in every department of its work, and the two are indissolubly connected. Proper organisation is essential to efficient production. Efficiency is the first requirement of the organiser.

Until recently, the art side of business was hopelessly inefficient, because in no sense organised. A business man had to put up with endless annoyance and trouble in attempting to purchase designs and illustrations, and in spite of all his trouble he could not get good work. Artists are proverbially unbusiness-like. It was practically impossible to rely upon getting them to complete their work to time. They rarely succeeded in understanding their patrons' requirements, for to talk to artists is in itself a sort of art. In addition to all the trouble which they gave, their charges were often somewhat "artistic."

As practically all business houses of importance use catalogues, circulars, booklets, press advertisements and other forms of publicity for which designs and illustrations are required, it stands to reason that the modern business man urgently requires to know something of commercial art and the conditions under which it is produced at the present time.

Briefly, the business man should know where to buy his art work and how to give his instructions (*i.e.*, how to order) so as to make sure of getting his requirements properly attended to. This knowledge will not only save endless trouble, but also a lot of unnecessary expense.

Broadly speaking, designs and illustrations for commercial purposes may be divided into two classes. In the first class are drawings of specific articles such as a desk, a piece of machinery, an electric lamp, or a building—in other words, drawings which are intended to illustrate certain articles in a catalogue, or to explain a process of manufacture. In the second class are illustrations or designs embodying ideas, the object of which are to catch the eye and create interest in the reading matter.

In the first class of work business men experience less difficulty in getting what they want than in the second, as if they wish to illustrate say a catalogue on boots and shoes, or pianos, it is, comparatively speaking, an easy matter to secure the services of an artist competent to make satisfactory drawings of the articles in question. This is largely a mechanical matter, which, while requiring skill and training, does not require very much in the way of either brains or originality. But care should be taken to select artists who specialize on the particular kind of illustration required. For instance, an artist capable of making first-class illustrations of suits, overcoats, etc., would probably make a hopeless failure if called on to produce illustrations of boots and shoes. It is therefore necessary, if the best results are to be obtained for the clothing manufacturer to have his work done by an artist who confines his attention to drawing clothing, and for the boot manufacturer to send his work to an artist who draws boots and nothing else.

General Office

The second class of art work, *viz.*, designs in which *ideas* are an essential feature, is altogether a different business from the usual work of an artist, and that is why the ordinary artist, or even the ordinary commercial draughtsman accustomed to business work, gets into such difficulties when called in by the advertiser to create a picture or a design embodying an idea.

In the first place, the average artist has very little, if any business training. He knows nothing of the conditions governing th sale of the article for which he is called upon to produce a bookle cover, a poster, a showcard or a series of press advertisements. There

fore, it is really unfair to expect him to be able to produce satisfactory ideas. Owing to this fact, business men have had to look elsewhere for a satisfactory solution of the problems "How to get new ideas" and "How to get pictures which tell the story." And this has created during the past few years an entirely new type of business concern, *viz.*, the commercial art studio, which is organized on thoroughly business-like lines to produce practically on demand designs and illustrations of every description, and pictures embodying ideas of real advertising and sales-making value.

These commercial art studios have all been started with the idea of giving business men business-like and efficient art service. Their managers know exactly how to convey an idea to the artist, and how to get the artist to carry it out with punctuality. If these studios did nothing else but save business men the worry of giving orders and seeing them executed, they would still have justified their existence. But they do considerably more than this. By employing large and versatile staffs they make it possible for business men to get their art work done by specialists, without being under the necessity of dealing personally with a number of different artists, as would otherwise be the case.

CLIENTS' RECEPTION ROOM

Let us take the case of one firm to illustrate this point. The Gramophone Company, which, as everyone knows, manufacture the famous "His Master's Voice" Instruments and Records, advertise in the press, and also by means of circulars, booklets, showcards, posters, etc.

The art work which this firm uses in the course of a year would, under conditions which obtained several years ago, call for the employment of a great number of skilled artists. They would need the services of one or more figure artists to draw the different pictures of famous musicians and singers who make records for the Company. Lettering and decorative

Managing Artist's Room

artists would be necessarily employed to design the parts of their advertisements in which decorative borders and lettering are used. The photographs of the various models of their instruments would have to be handled by a competent retoucher—that is, by a man who is thoroughly trained in the art of working up a photograph and retouching it so as to give the best printing results. Their posters, showcards and other work of this description would call for the employment of still other men, as the chances are an artist who is good on black-and-white work would be very little use on colour-paintings suitable for showcards and posters. In addition to the absolute necessity for the employment of these different classes of artists, the rush conditions under which advertising work often has to be done would necessitate the use of fifteen or more men to accomplish in an afternoon the work which one man could not do in a week.

Idea and "Copy-Writing" Department.

In short, the day of the independent commercial artist has gone, for business men have been quick to realize the many advantages offered by really efficient, business-like art-

One of the Designers' Studios

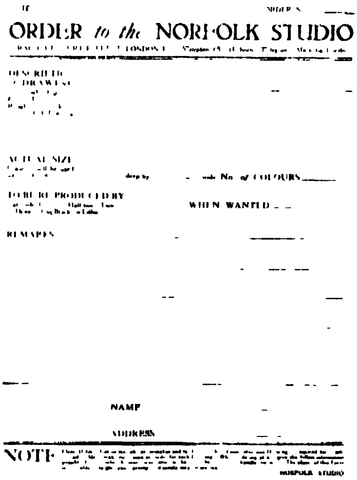
producing concerns, generally called "Studios."

An order sent to a modern commercial art studio is first of all handed to the manager of the Copy and Idea Department. In this Department the work is laid out and arranged. If an idea is required, or any particular instructions are found necessary, these are made and attached to the order, which then goes to the manager of the artists' room. This man, when he sees the job, knows exactly the particular man or men on his staff, numbering from a dozen to perhaps forty or fifty men, according to the size of the studio, who can handle it to perfection. It may perhaps be divided among three, four or more artists if the nature of the job necessitates this, or if it is wanted urgently. A figure man would work on the figures, while this was being done the border or decorative portion would be entrusted to an artist specializing on this kind of work, the lettering being at the same time handed to an expert in this branch of designing. The different parts of the design would then be pasted together and mounted as one drawing at the finish, representing the work of several different men, none of whom individually

Photographic Studio

could possibly produce the same perfect piece of work. And the drawing would be in the hands of the engravers in perhaps three or four hours from the time it entered the studio.

In order to get full and correct information and thus avoid mistakes printed order forms are supplied by some Studios. These order forms have blank spaces for description of drawing, so the buyer can state whether he wants a pencil sketch, rough colour sketch or finished drawing, also spaces in which to note actual size of paper and size of design, number of colours, when the work is wanted, how drawing is to be produced whether by line, tone, litho, etc. A specimen order form is reproduced on this page.



ORDER *to the* NORFOLK STUDIO

DESCRIPTION OF DRAWINGS

ACTUAL SIZE

No. of COLOURS

TO BE REPRODUCED BY

WHEN WANTED

REMARKS

NAME

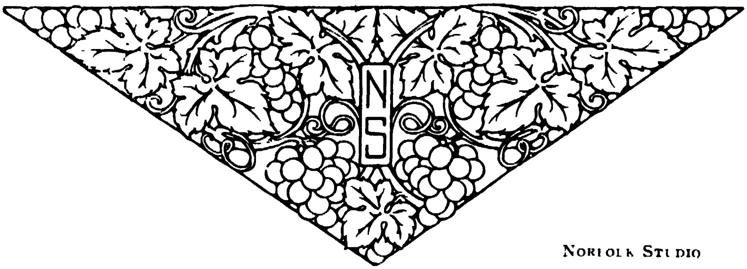
ADDRESS

NOTE

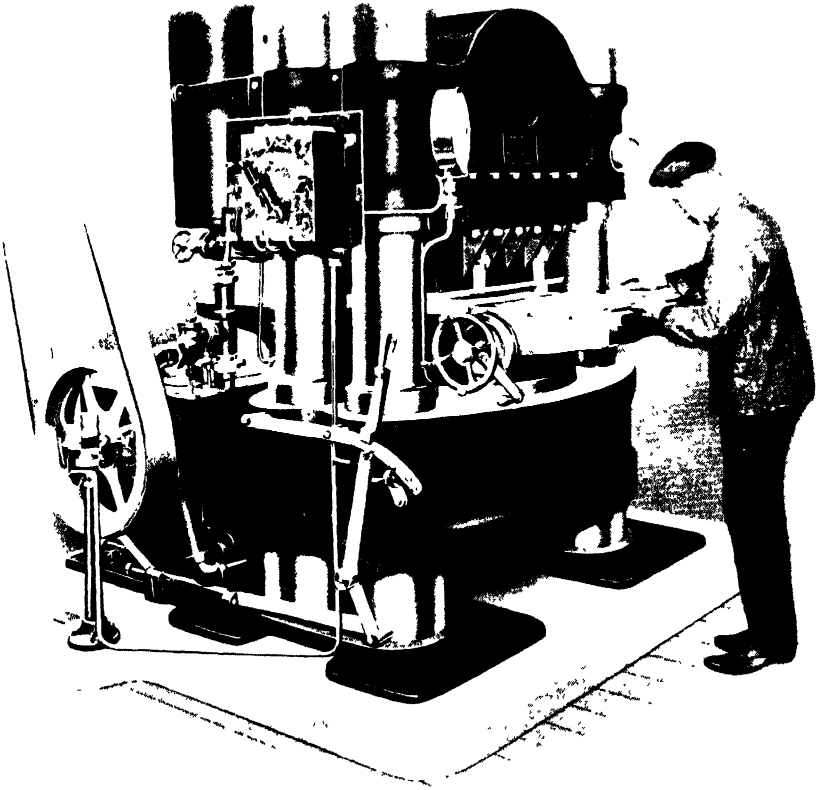
NORFOLK STUDIO

It is impossible in a short article such as this to enumerate the many services rendered by modern commercial art studios. It may be stated, however, that their main claims to the patronage of business men are: Prompt and business-like service; expert advertising and sales advice; suggestions and ideas; rapidity of production made possible by the utilisation of as many men as may be required, and moderate charges (owing to co-operation and organised effort), as distinguished from the often artistically-inflated charges of the typical long-haired gentleman of by-gone times.

Editor's Note.—The photographs used to illustrate this article were made at the Norfolk Studio, The Home of Ideas for Advertisers, Racquet Court, Fleet Street, London—one of the largest and most typical examples of the modern commercial art studios.



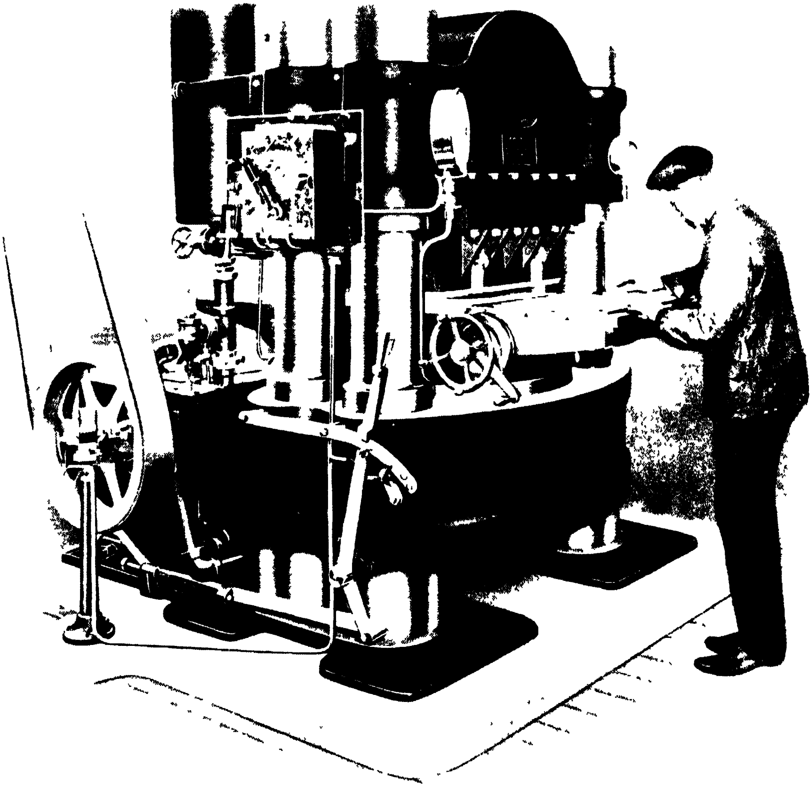
Norfolk Studio



Eyre & Spottiswoode Ltd

From the Original Half Tone

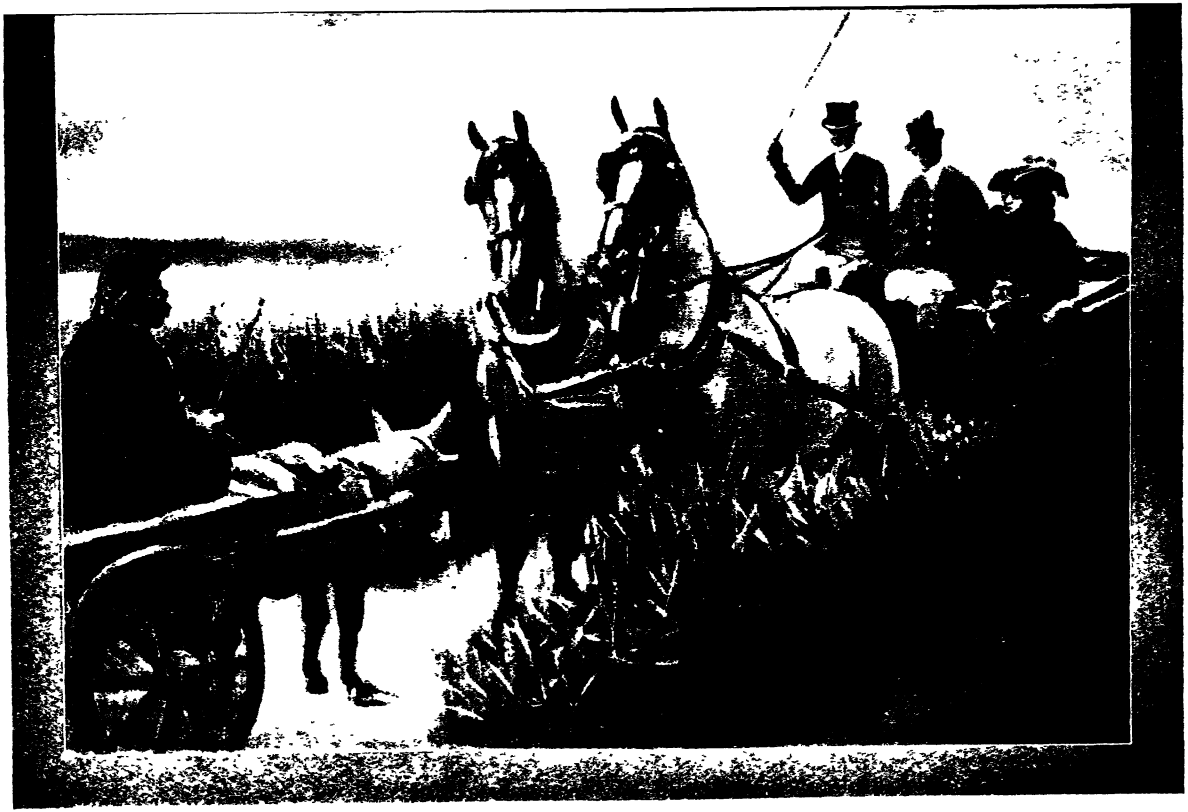
HYDRAULIC LEAD MOULDING MACHINE



Eyre & Spottiswoode, Ltd

From an Albert Galvano
(Lead Moulded Electro)

HYDRAULIC LEAD MOULDING MACHINE



THE LUCAS ENGRAVING CO., LTD

FRANK STONELAKE

EXTREMES MEET

Sketched from an Old Painting in one hour

TALKS ABOUT NEWSPAPER BLOCKS.

By A. MANGIAGALLI, Rome.

Translated by R. BORN, Milan

SESSIONS & CO.　　S. J. BECKETT, F.R.P.S., photo

AN ITALIAN BOY

I ONLY have the intention of talking about those blocks which are printed on high speed rotaries.

At first view the subject does not appear very interesting, so much being considered to-day mechanical and common in newspaper reproduction work. However, because of the enormous importance to-day of the illustration of the actualities of our strenuous life, and because of the high standard which is claimed by the directors of the large newspapers, the reproductions still deserve to be studied.

I shall touch in this short article the questions which appear to me the most important, namely, the good result of an illustration in a newspaper and the rapidity of the execution of the block. As to the first *vexata quæstio*, we have to premise without any further evidence that always, or nearly always, a bad illustration depends either upon bad printing, or upon an original not suitable for reproduction. With the degree of technical perfection attained in block making to-day, we cannot believe that the bad result of a print could depend upon the imperfect execution of the block.

The typographical causes of this bad print are many: the rush in the make-ready, the enormous speed in printing, the paper, the ink, etc. In spite of these difficulties which we cannot easily eliminate, we have to recognise that in general newspaper illustrations are fairly well printed, if we also take in account, that whilst the rotary machines have been perfected as far as general printing is concerned, little or nothing better is offered for block printing, especially for large sizes.

Amongst the many difficulties against good printing is the task of the machine-minder to attend in the proper way to the make-ready, which sometimes requires special preparation, and which very often for lack of time at the last moment cannot be done. That satisfaction can be given to the machine-minder, who is nearly always the victim of the tyranny of time and antiquated technical means.

Certainly, also upon the choice of the originals depends the good result of an illustration; but it must be understood that a photograph of an event has to be reproduced without any alteration, so that any original must be good *par force majeure.*

But in general, the editors, or those whose task it is to distribute the originals, however clever they may be, are absolutely incompetent on photo-mechanical work. Too many years of hard application are needed in order to give if I may thus express it the sense of our difficult art. For many of them any good photo is suitable for reproduction They do not think of the destructive effect of the coarse screen, or the treatment the block will receive, or what may be the result of the printing. For them small delicate details, large shadows and light vignettes do not present at all any difficulties which any good photo-engraver should be afraid of, if he has to reproduce them for a newspaper.

Therefore, where we have the possibility, we choose the original, taking into account the influence which the reproduction and printing will have upon it. To give an instance amongst the many We know, that for reasons not easily overcome, the dark parts or half-tones of the block in newspaper printing nearly always appear grey or faulty, and therefore details contained in them cannot be distinguished at all giving thus to the eye the impression of a smudge. It is evident, that in order to avoid a similar case, there is no other means than choosing an original which has no large grey spots. Originals which have to be reproduced by means of a coarse screen ought to show preferably large details and be rich in half-tones. On the contrary, to-day, nearly all the reporters or photographers use small cameras and afterwards in a much exaggerated way enlarge the small negative, printing on bromide paper, the real destroyer of detail and light half-tones, especially in the enlargements As a rule these enlargements would require a good amount of retouching But this is rendered difficult by the empty spaces which exist in the half-tones, and in most cases precaution and lack of time advise one to reproduce them just as they are.

Here are, according to my idea, the two causes of the bad result of an illustration the original or the printing these being readily overlooked, and in the place of which the block is criticized!

I believe that, for a long time still, there will be no other practical way of block reproduction for large editions than the typographical one. Other systems, which to-day are in successful use on important papers with small editions cannot, I believe, easily be adapted to high speed printing.

As to our way of reproducing, I am well convinced, that before long it must be done direct on to the zinc, avoiding thus the few minutes which are absorbed by the making of the negative. The Paynetype Process is a step in the right direction, but it ought to be rendered still more practical, especially in the part which concerns the reversal of the image. Certainly, this will be the system which will become general and which will have a long life. By the way, I may say, that with a few perfections in the methods of printing and also of stereotyping we could produce blocks with finer screens than those used to-day, which, though they answer pretty well the purpose, are not suitable for certain originals The process, as it is in use to-day, is fairly practical and with new applications we can but gain a few minutes of advantage, considering, that the execution of newspaper blocks to-day requires already a minimum of time However, the actual process requires a serious and up-to-date plant, with not a little experience on the part of those who have to use it

I wanted to insist in this short article upon the distinction of the responsibilities which have to be made when judging a bad print

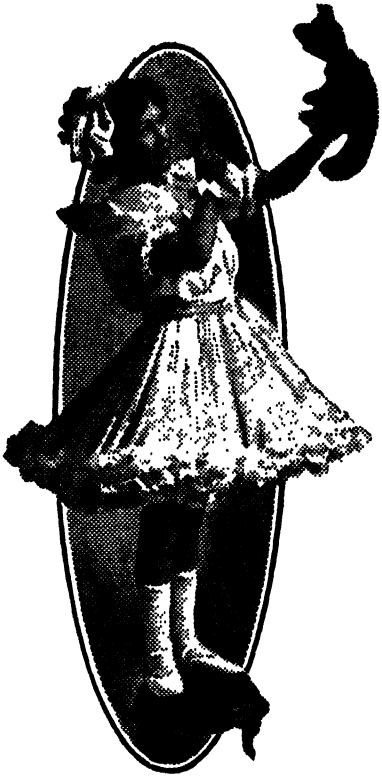
Living much in the newspaper world, I have learned by experience, that from both sides very little time is devoted to studying the causes of a bad print and the eliminating of the same. In the rush of newspaper life there is but little time left for studying, it is true, and it is the "rush" which commands, many a time the good being sacrificed to its tyranny It is for this reason that this important branch of our art has to be studied still more, and if for nothing else, at least for the benefit of the æsthetic

BADOUREAU & JONES, LTD　　CHARLES REID, photo

PRINTED FROM A NICKEL-STEEL ELECTRO

NEWSPAPER ILLUSTRATIONS OF TO-DAY.

By THE EDITOR.



Little Mary O'Hara.

"Yorkshire Post." Sachs, photo.

WE feel that our Annual would hardly be complete without giving some examples of the illustrations which are now being so largely used in our newspapers. We have grouped these on to one sheet and printed them on a paper of similar character to that employed in newspaper work, but of course the blocks have the advantage of having been printed on a flat bed machine. Moreover the printing is from the original blocks, so that the result does not suffer from stereotyping, as it too often does in the actual newspapers. Further, the ink used is better, and the make-ready will naturally have been an improvement on the ordinary newspaper practice. However, this treatment is perhaps desirable as it will show our readers how much better the illustrations in our daily newspapers would be if they could be printed under better conditions. Undoubtedly the blocks are right, and only the printing conditions are at fault.

A great deal is done by many newspapers to improve the character of the originals, by recopying, enlarging and retouching, whilst elaborate underlaying is resorted to before stereotyping in order to bring up the shadows into higher relief and at the same time relieve the pressure on the lighter portions.

Another point to which attention is given by most papers is the provision of suitable borders for the pictures, this being a great gain in effectiveness. The two blocks from the *Yorkshire Post* show the improvement that results from such treatment.

The block of the *Daily Mirror* is an example of what may be done by clever retouching to increase contrast and bring out detail.

The *Yorkshire Observer*, which has always been conspicuous for the excellence of its illustrations, has lent us a block ("Lady Fitzwilliam's Drawing Room") showing that it is possible to reproduce fine detail, even with coarse screens.

The *Daily News and Leader* show that they do not confine themselves entirely to half-tones, but make effective use of line sketches, the pretty illustration of "Greenstead Church," printed above one of the half-tones from that paper, showing how much more attractive a well-executed line sketch may be than a half-tone for landscape and architectural subjects.

The half-tone sent us by the *Leeds Mercury* of the meet of foxhounds is an example of a clear and nicely grouped photograph which reproduces well for newspaper work.

The football subject by the *Daily Record and Mail* is excellent by reason of the way in which the figures stand out, a result due no doubt to a little careful retouching.

The picture of "Rowley Regis Church in Flames," furnished by the *Birmingham Gazette*, is particularly interesting as an example of how quickly a news picture can be produced. The *Gazette* photographer (Mr. George Dawson) reached the office at midnight from the scene of the fire which he had photographed by flashlight. The negatives were quickly developed, and an enlargement made. This was touched up and handed to the process man (Mr. H. Lowe), and from the time he received it until it reached the hands of the stereotyper, only twenty-one minutes elapsed. The area of the block used was thirty square inches. This example will bear favourable comparison with other recorded "rushes." Many instances have been given us of the wonderful speed with which news illustrations are produced nowadays, showing the high perfection that has been attained, and the press photographer and the process engraver can hardly do more to either quicken or improve their work. It is to the stereotyper and the printer that we must look for any further improvement in newspaper illustrations.

C. B CRAWSHAW, ESQ.

"YORKSHIRE POST." JAMES BACON & SONS, photo.

1

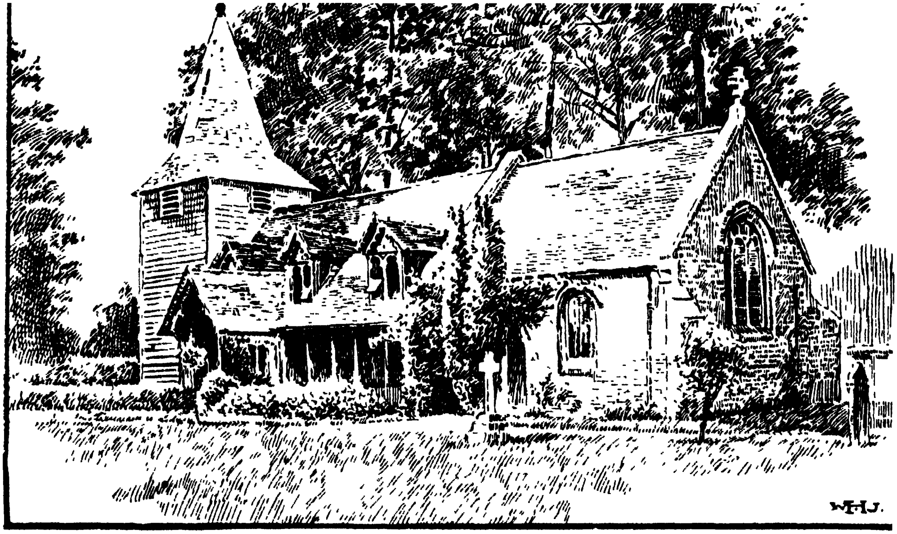
Photo & block by the "Yorkshire Observer"

LADY FITZWILLIAM'S DRAWING ROOM

As it was at the King's visit to Yorkshire, 1912

"Evening Post," Jersey, C.I. "Evening Post," phot

A JUVENILE CHANNEL SWIMMER.



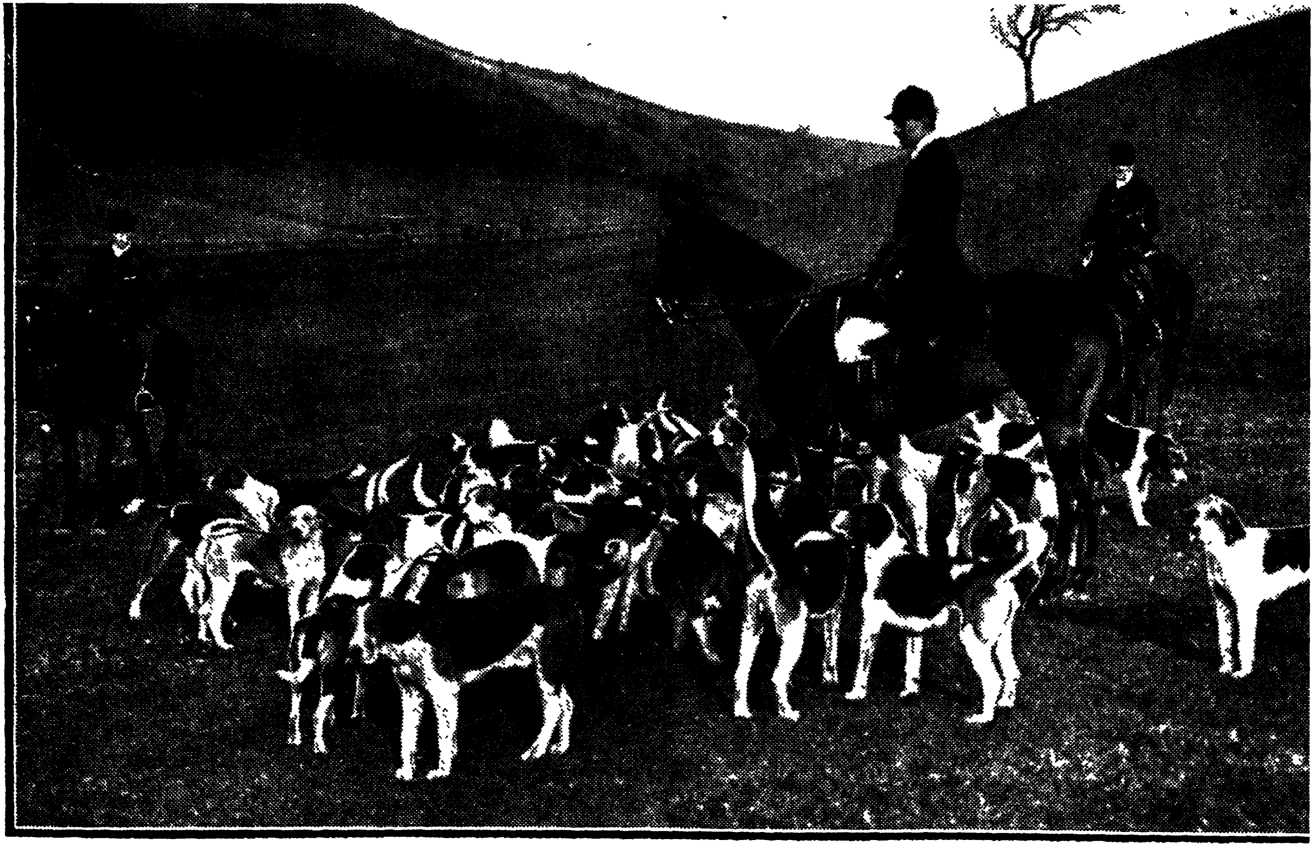
"Daily News and Leader" Process Dept. Drawing by W. J. Harring

GREENSTEAD CHURCH, ESSEX.

The original oak beams of the Saxon builders remain to the present day

"The Daily News and Leader" Process Dept. Fred J Taylor, p

SUSSEX COTTAGES.



"Leeds Mercury." "Lee

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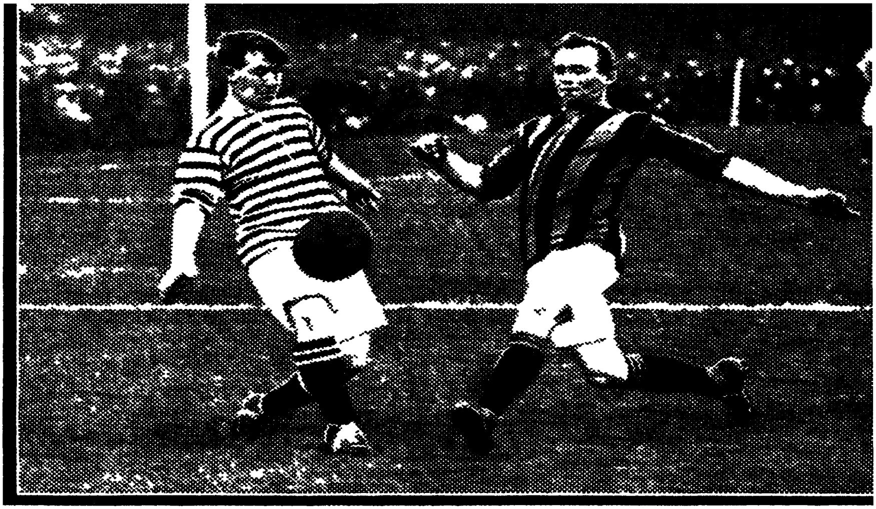

"Daily Record and Mail," Glasgow   Fred W. Plews,

DUMBARTON v QUEEN'S PARK,

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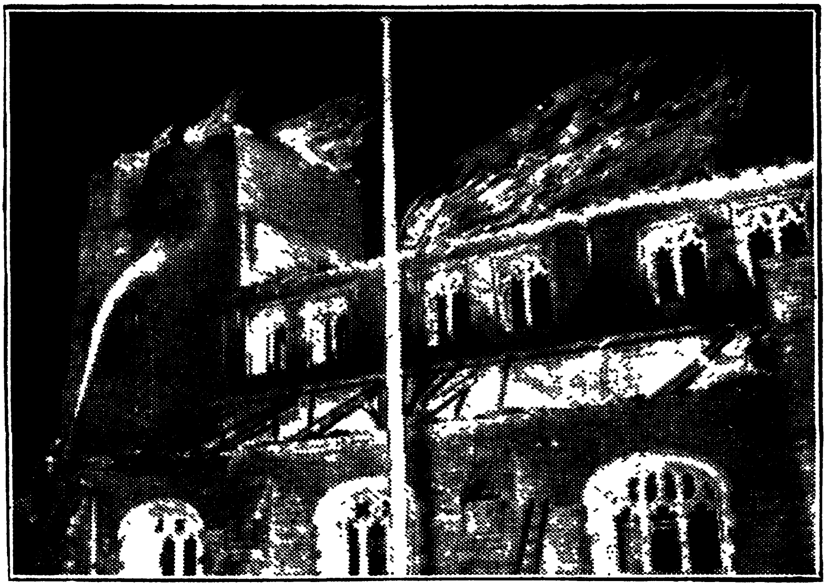

"Birmingham Gazette"   George Dawson, photo.

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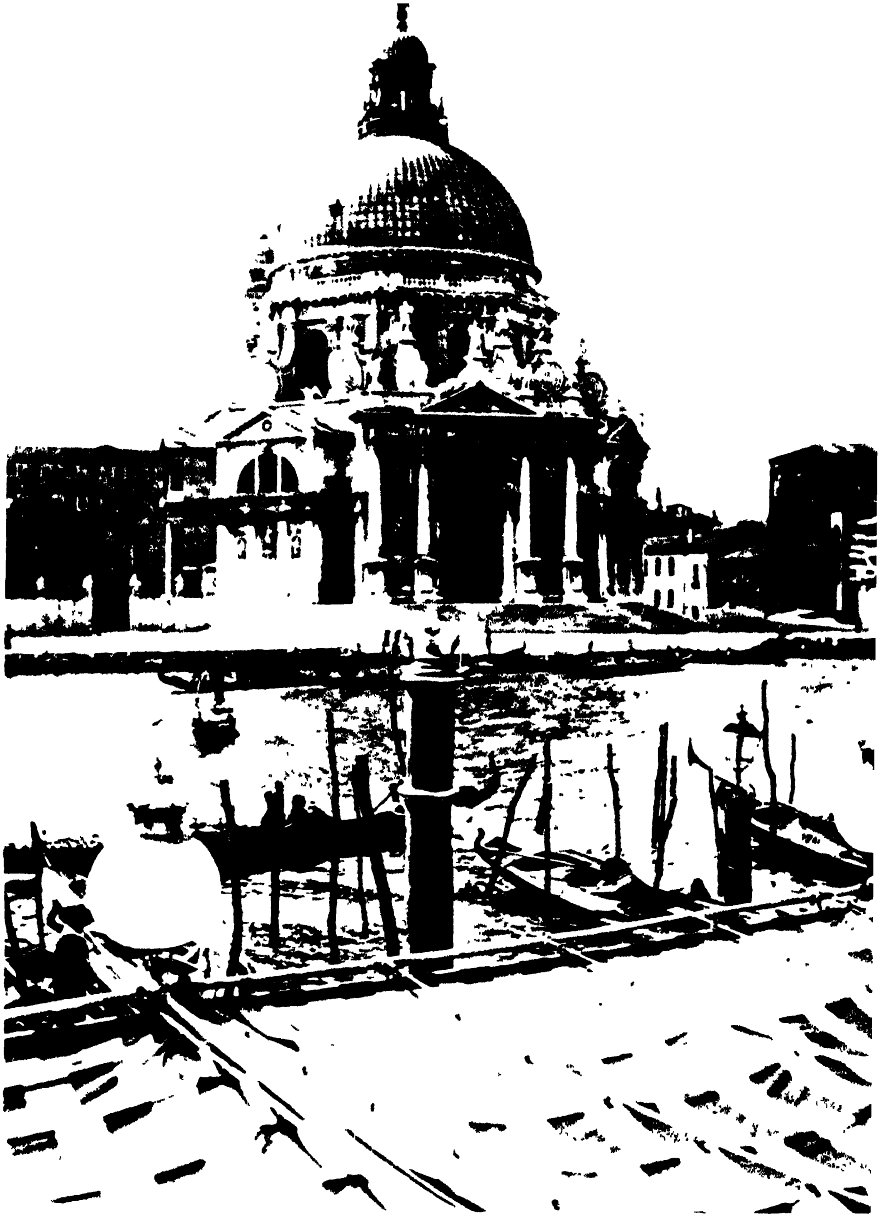

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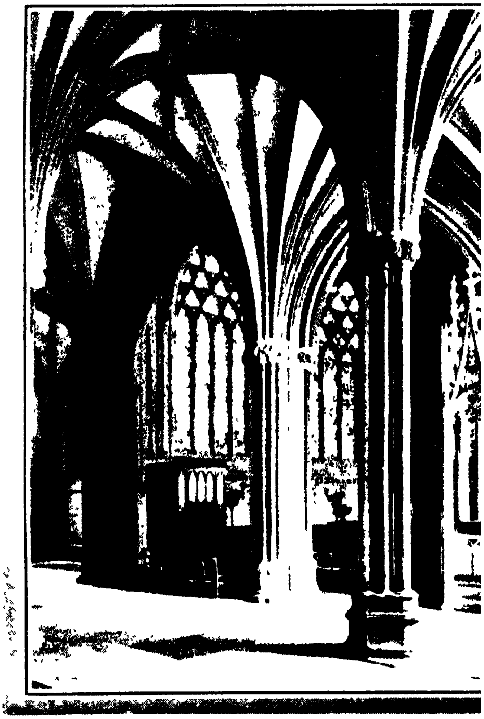
Howick Grange—The Home of Viscount Howick, son of Earl Grey

Fallodon Hall and Duck Pond—The Home of Sir Edward Grey

Earl Grey and his Daughter, Lady Sybil Grey

HOWICK HALL—THE HOME OF THE GREYS



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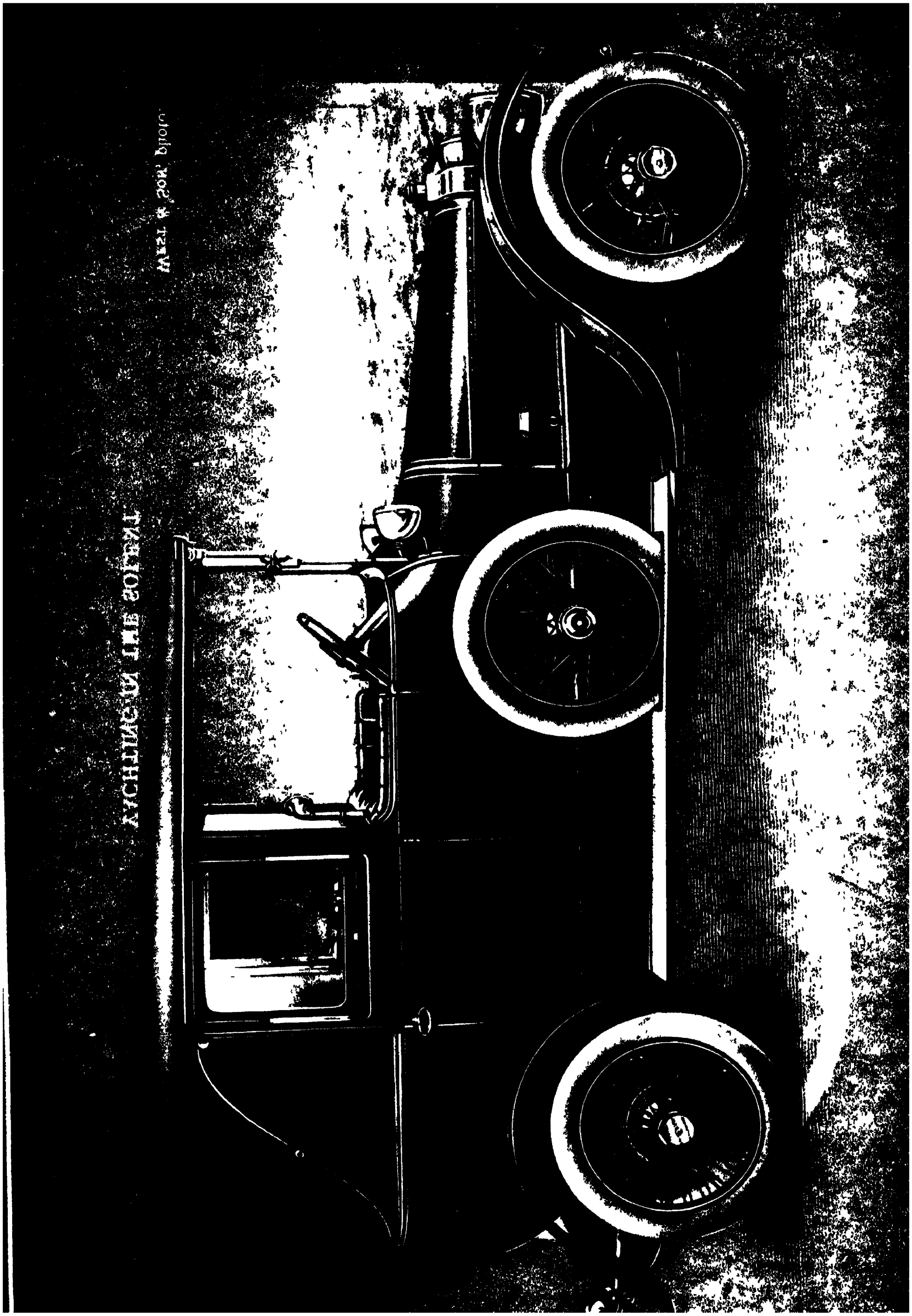

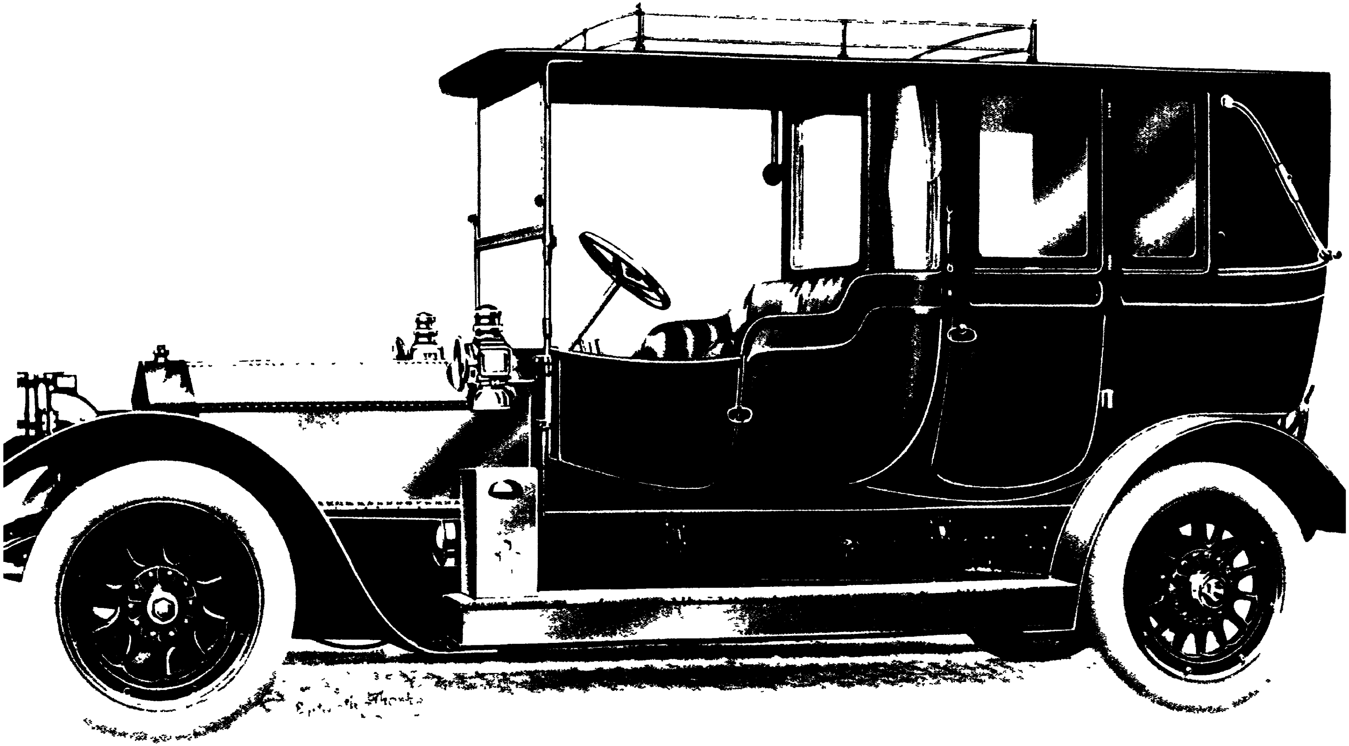

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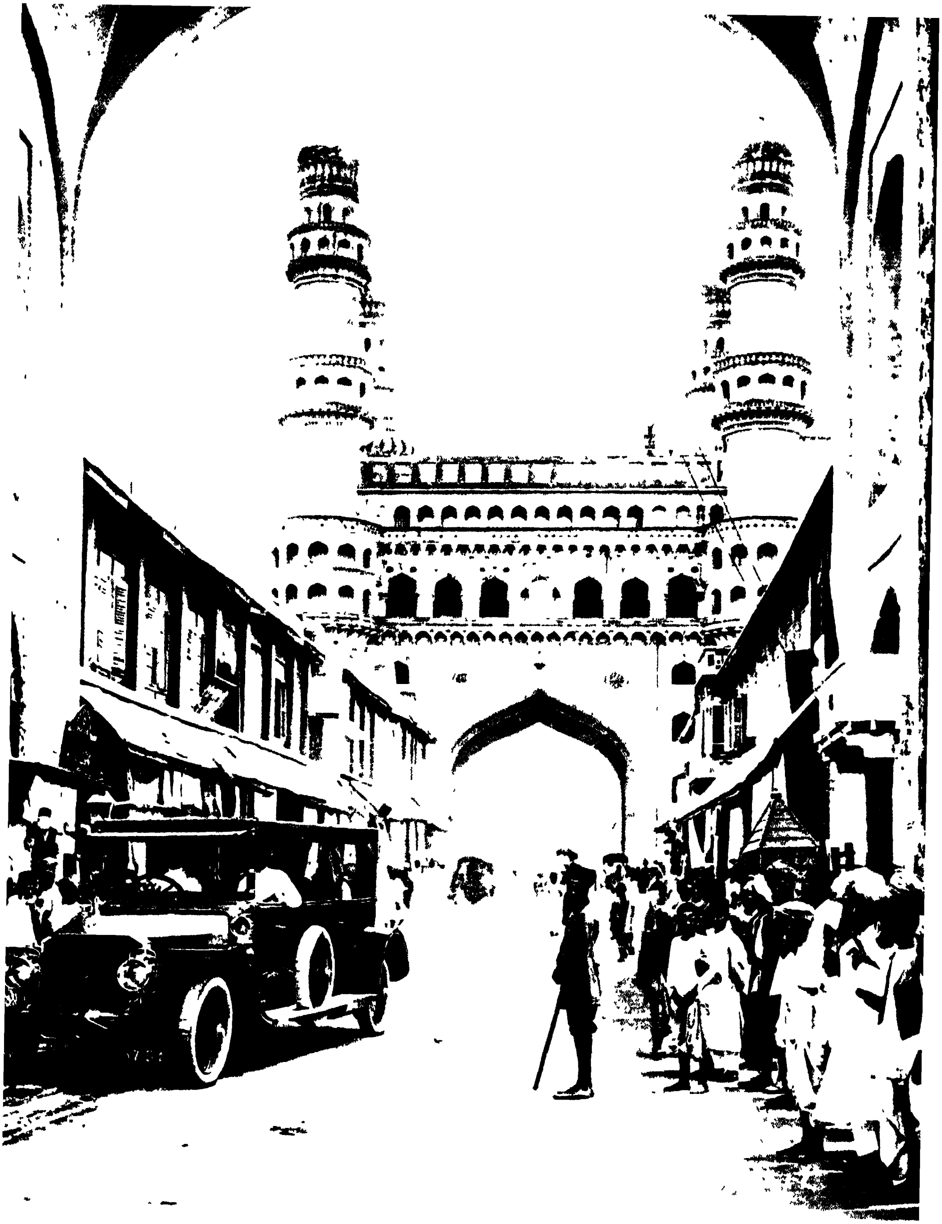

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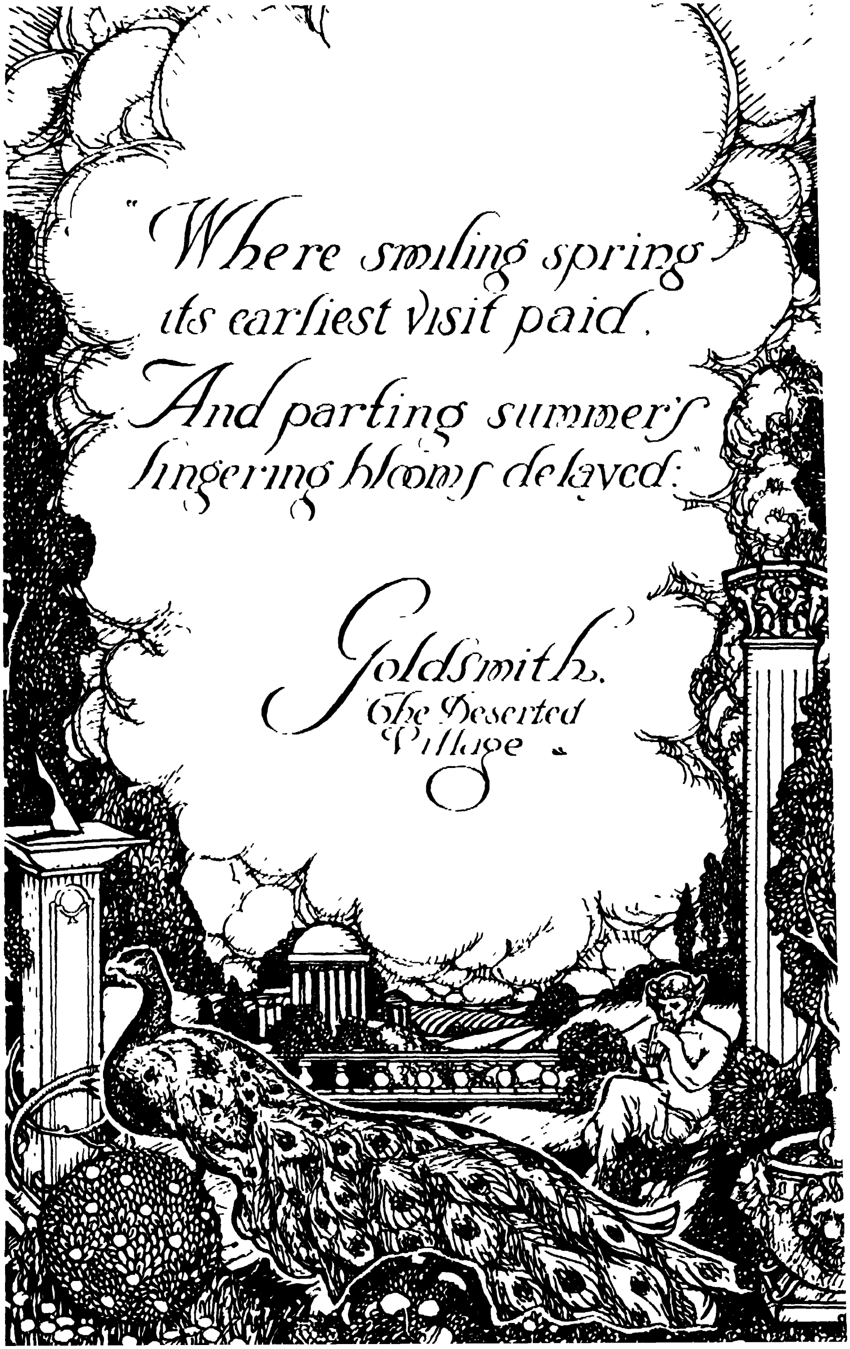

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its earliest visit paid,
And parting summer's
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The Deserted
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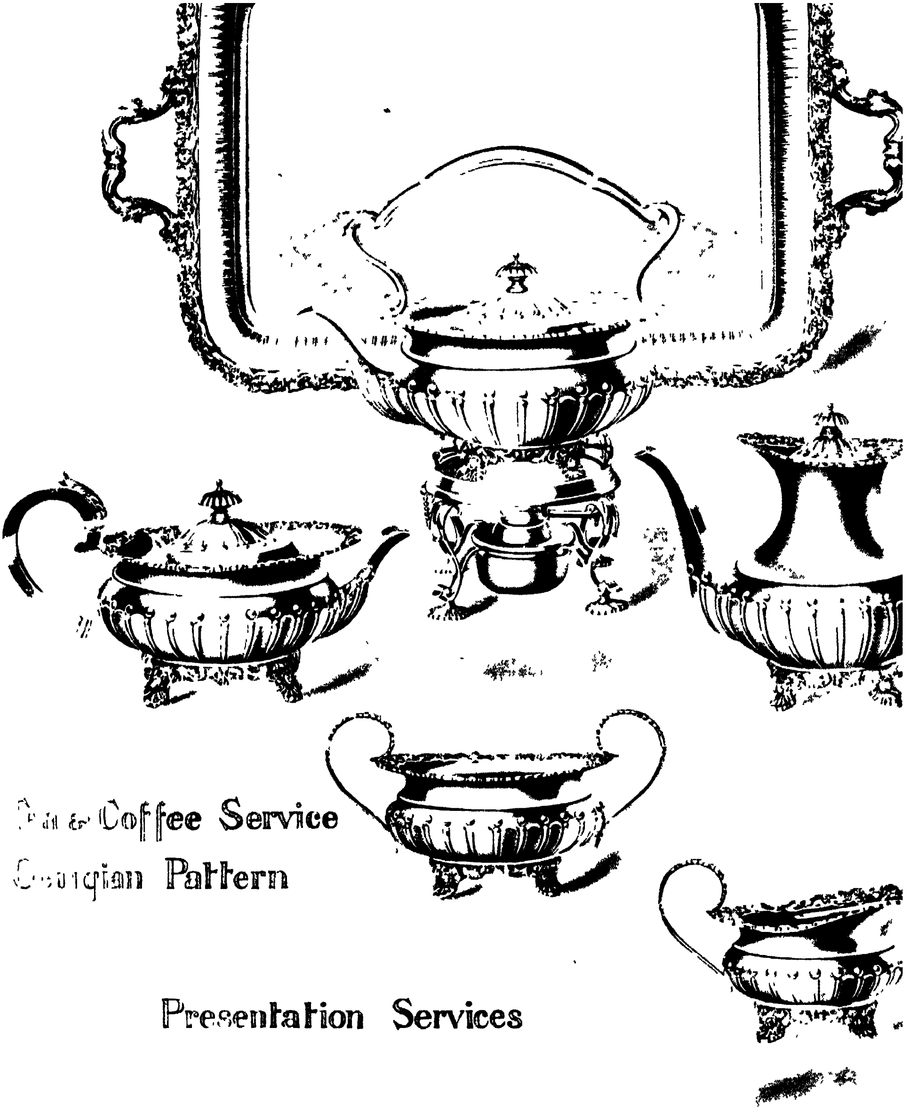

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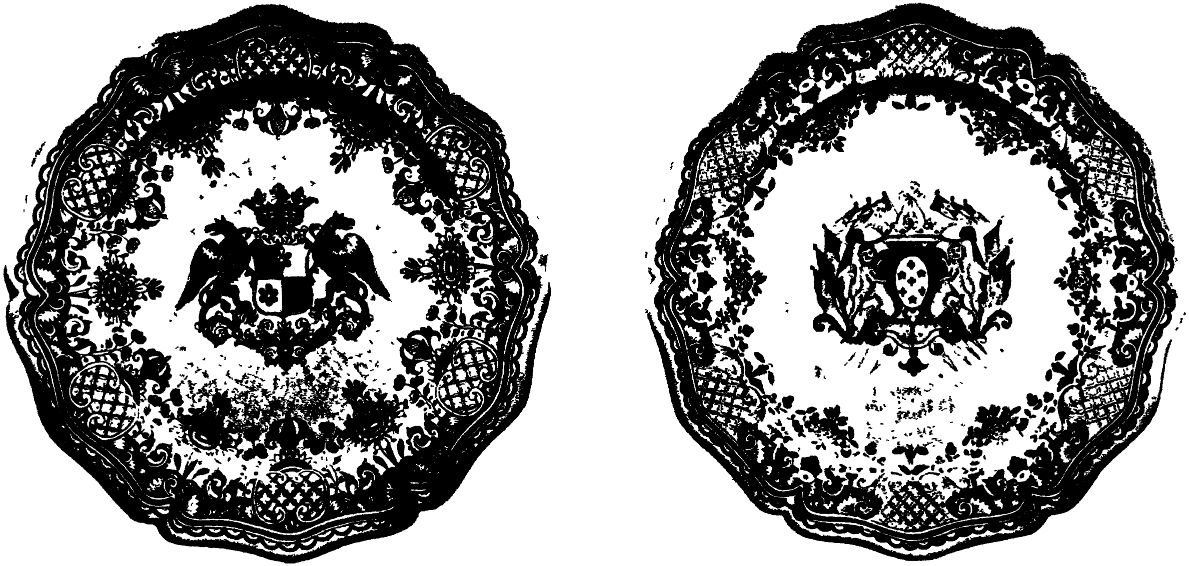

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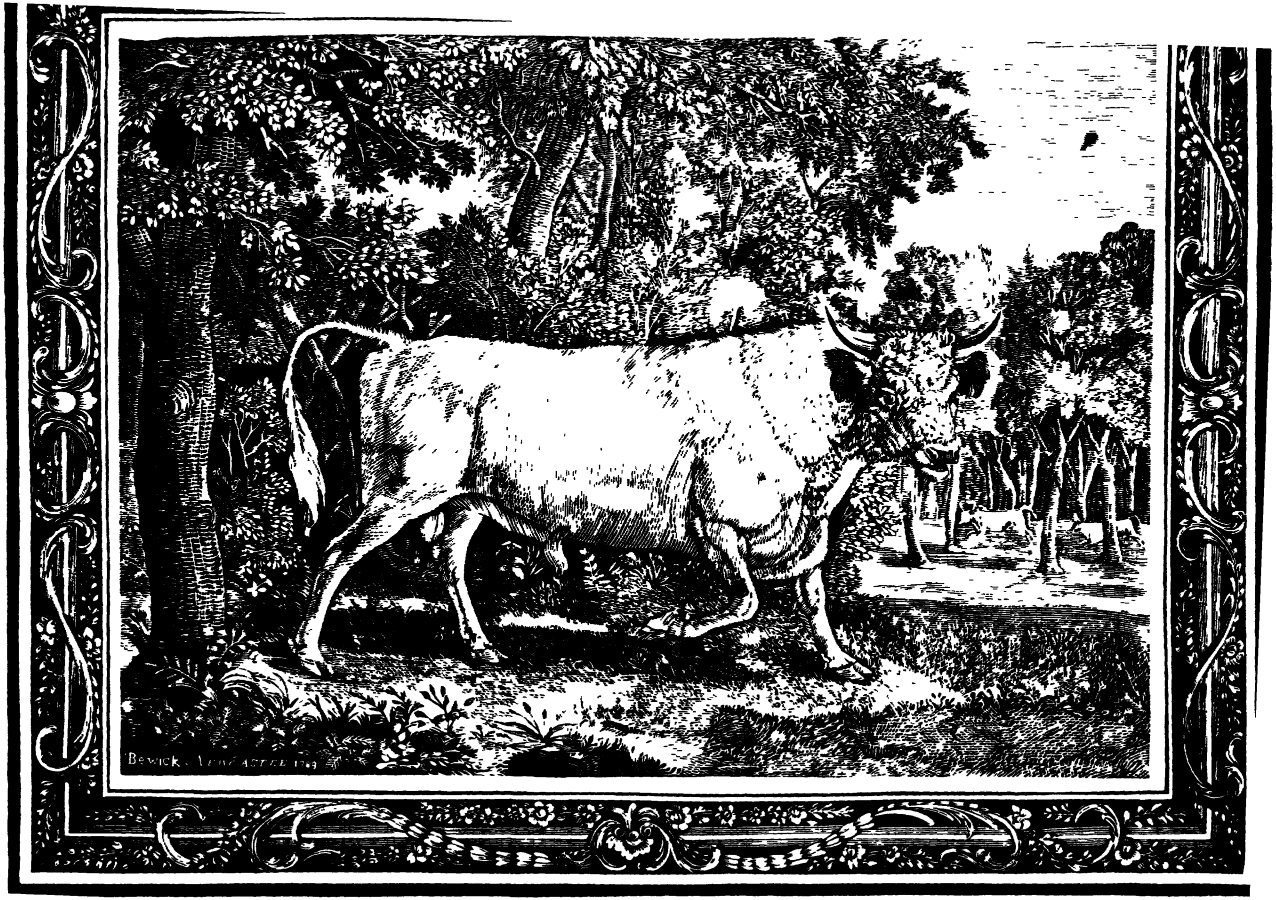
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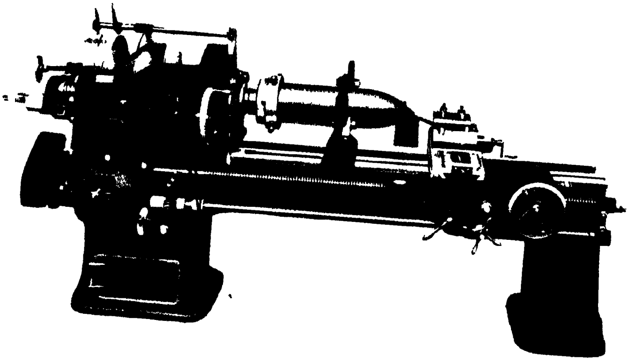

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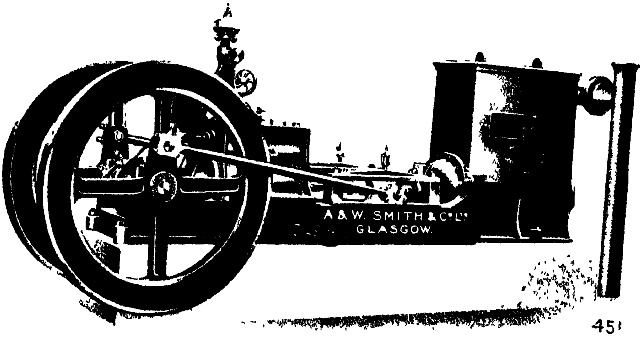

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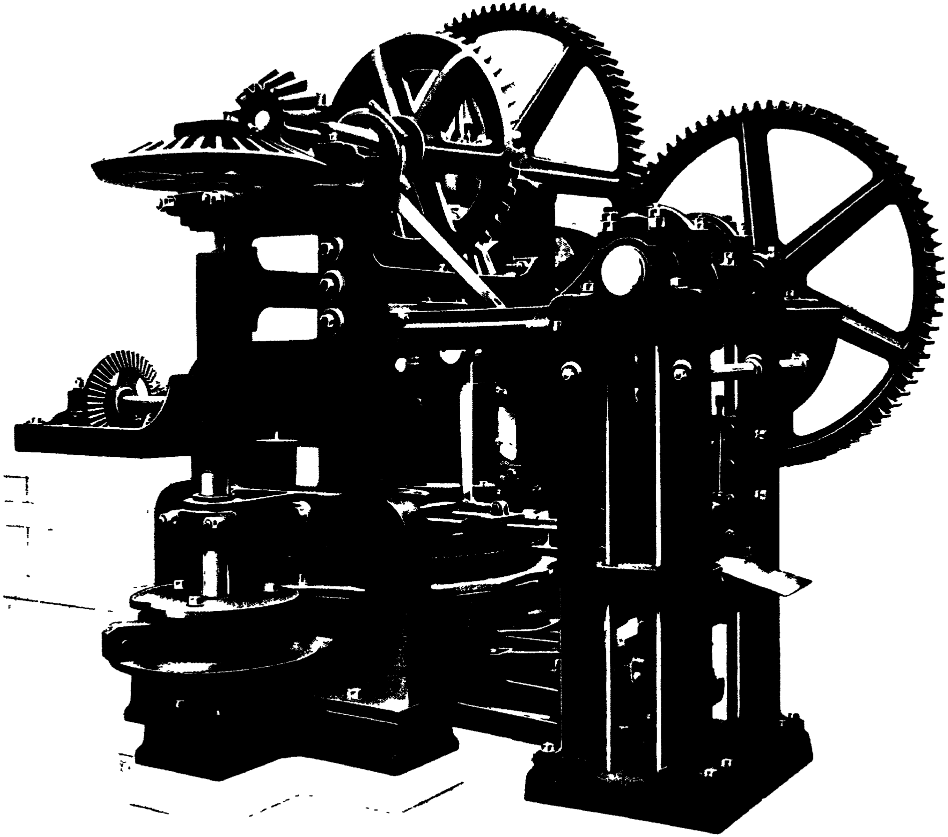

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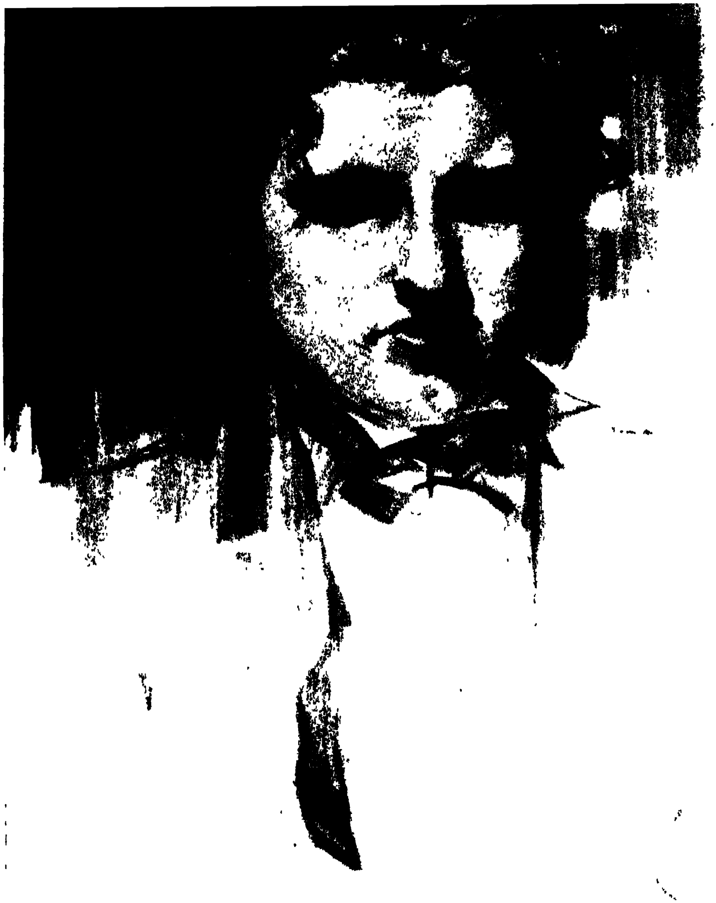

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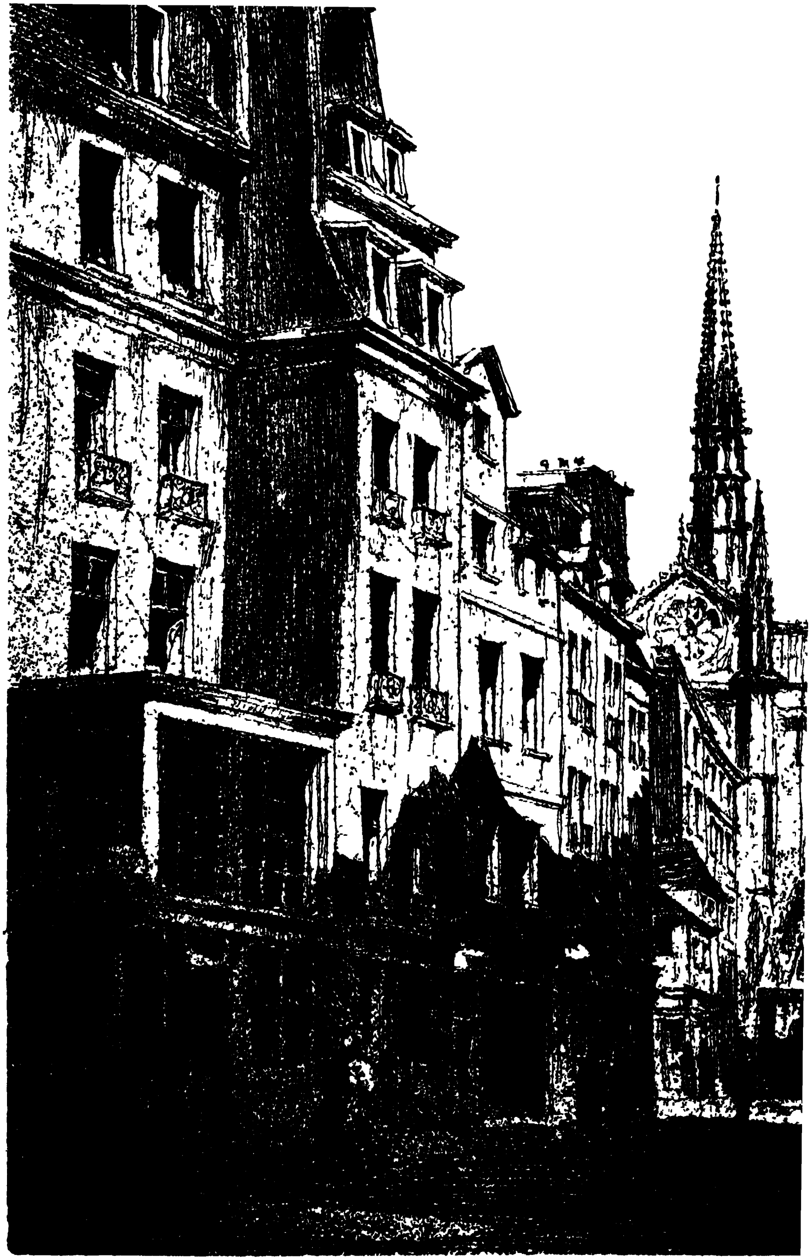

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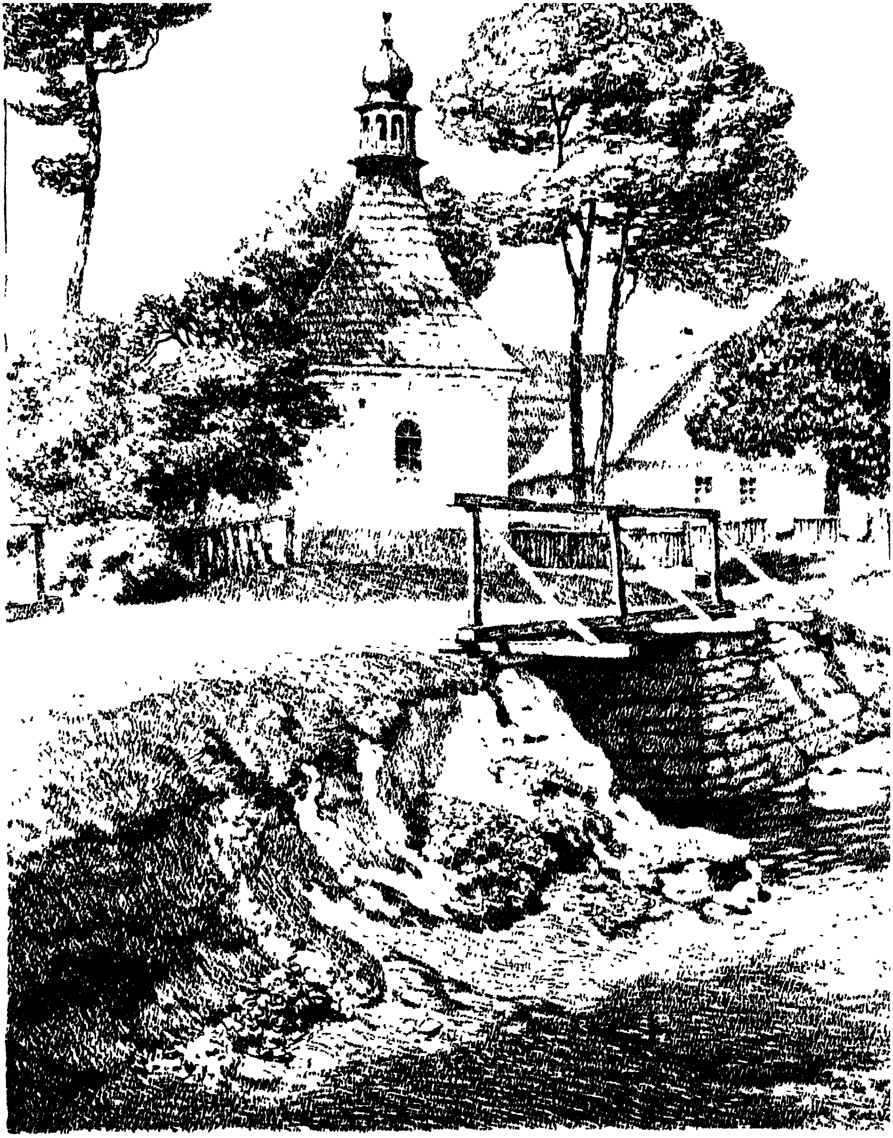

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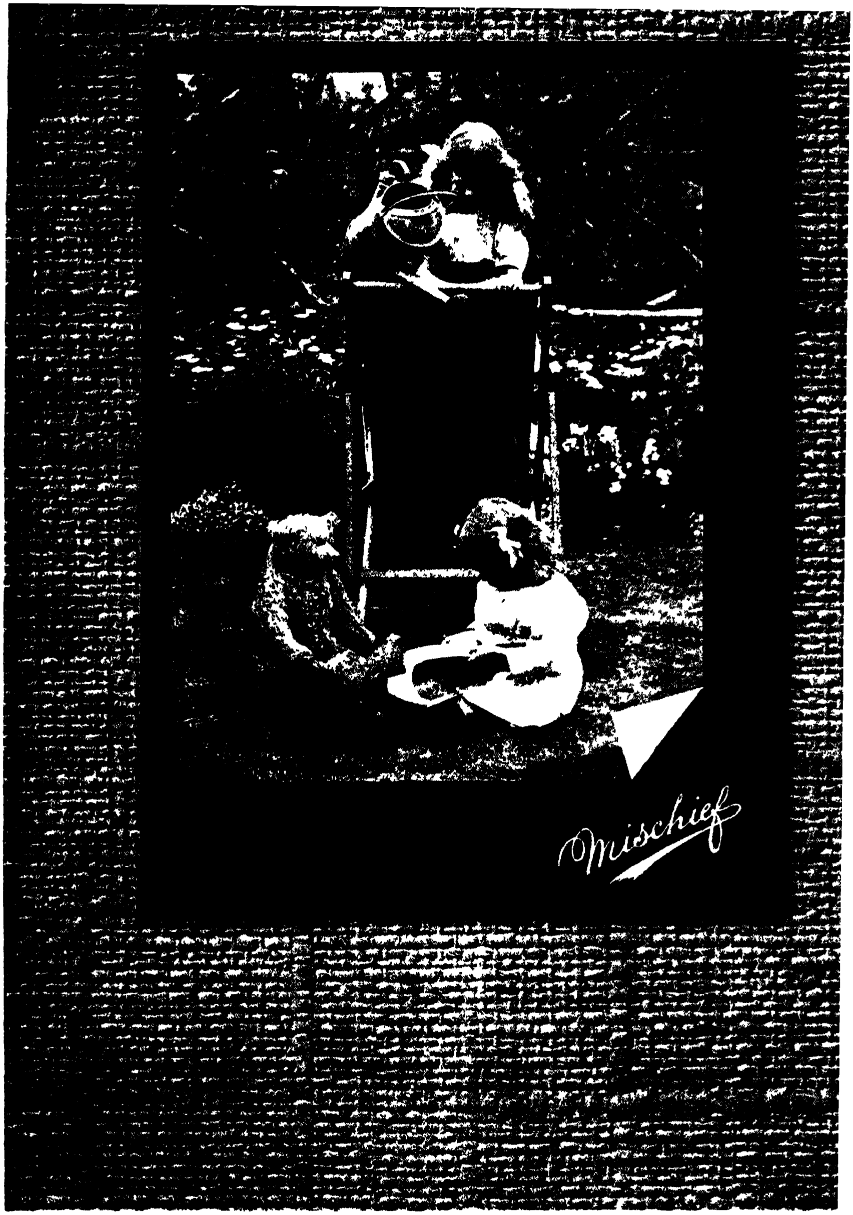

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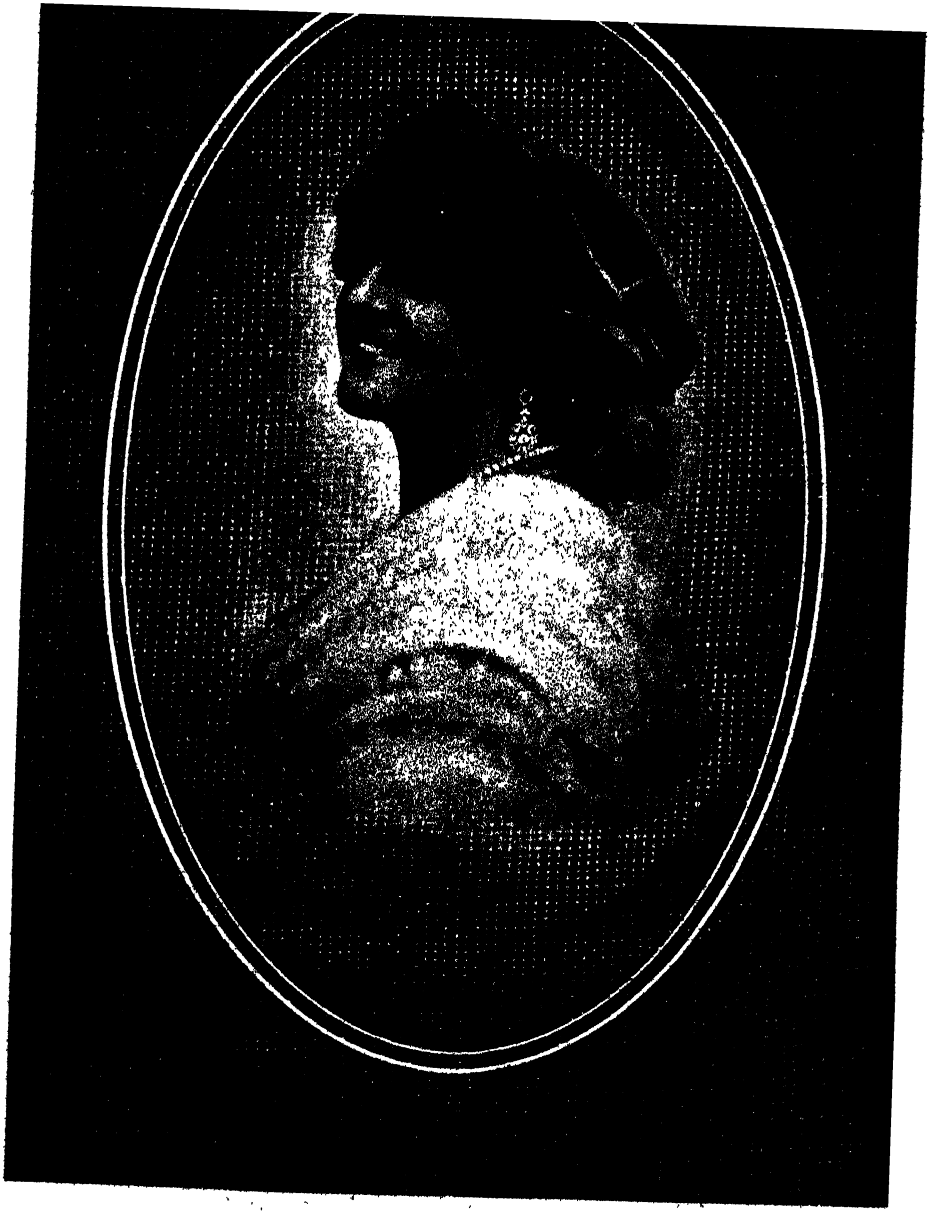

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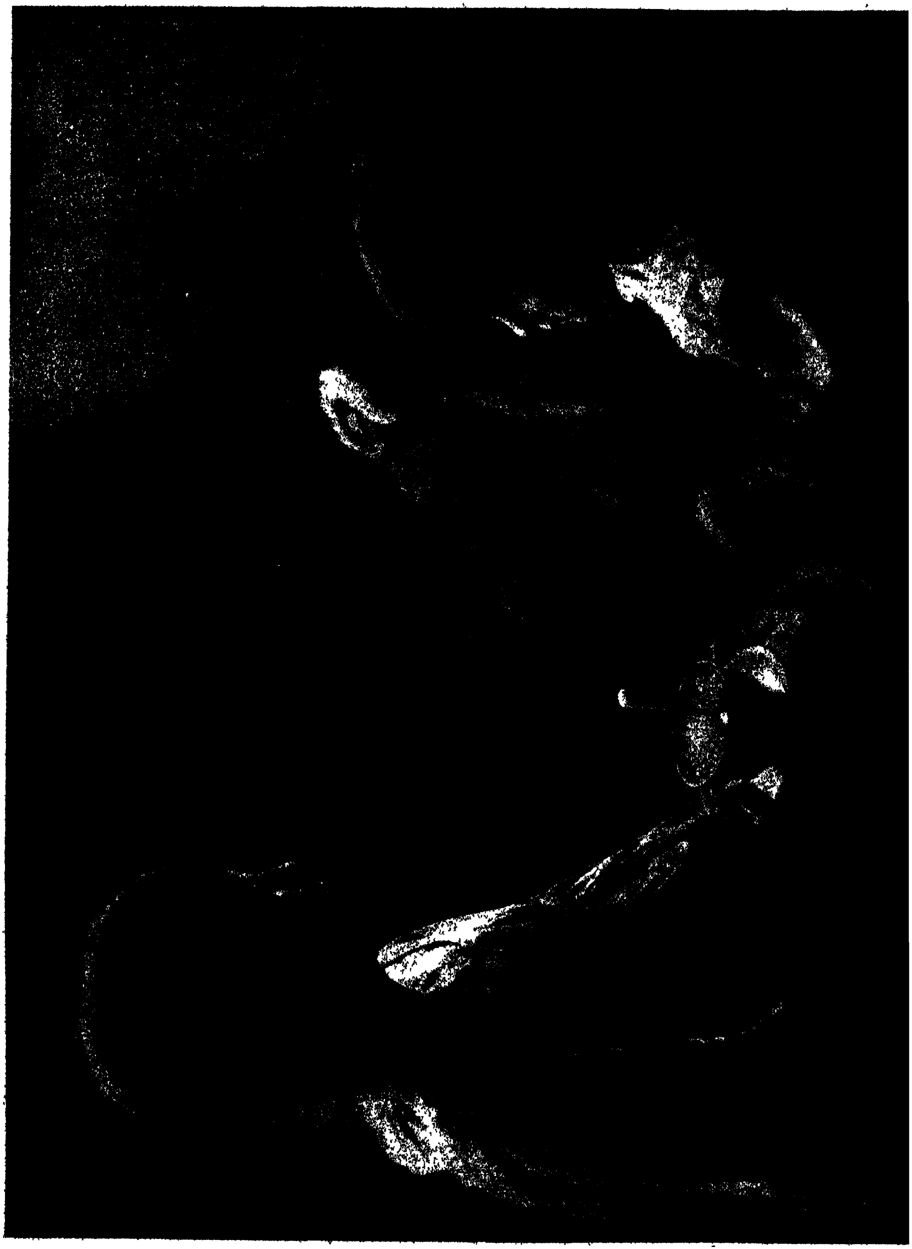

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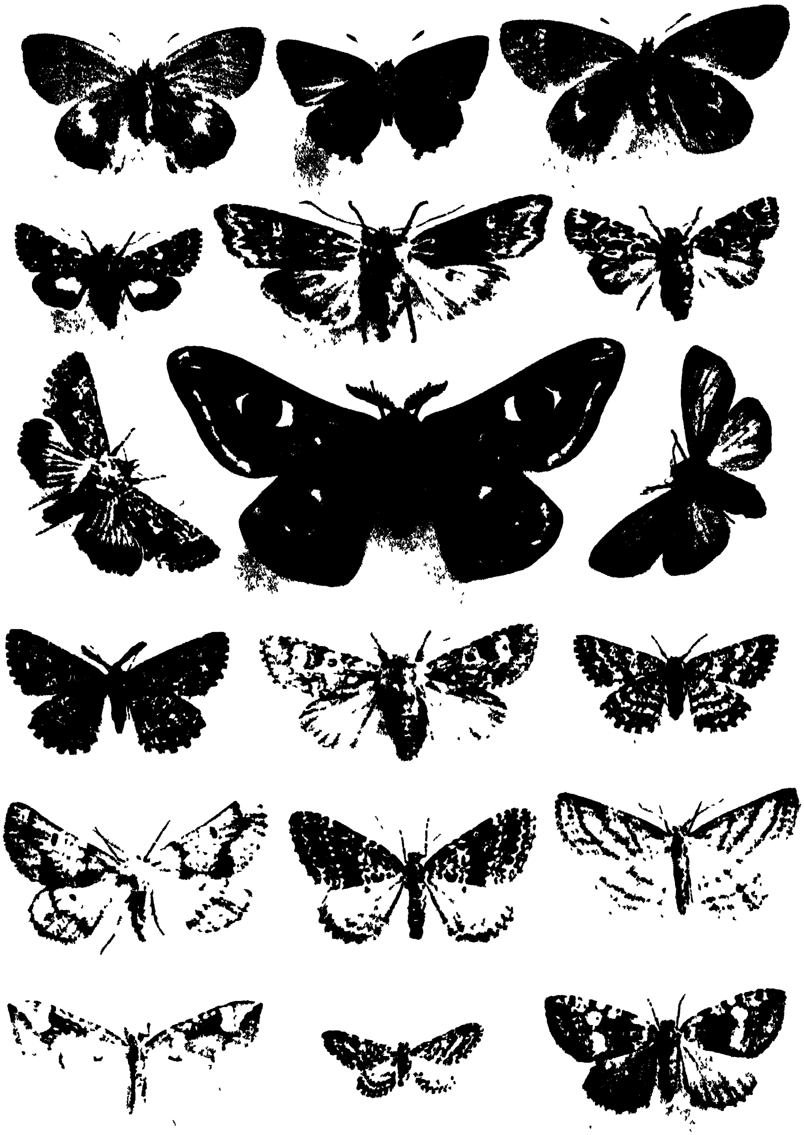

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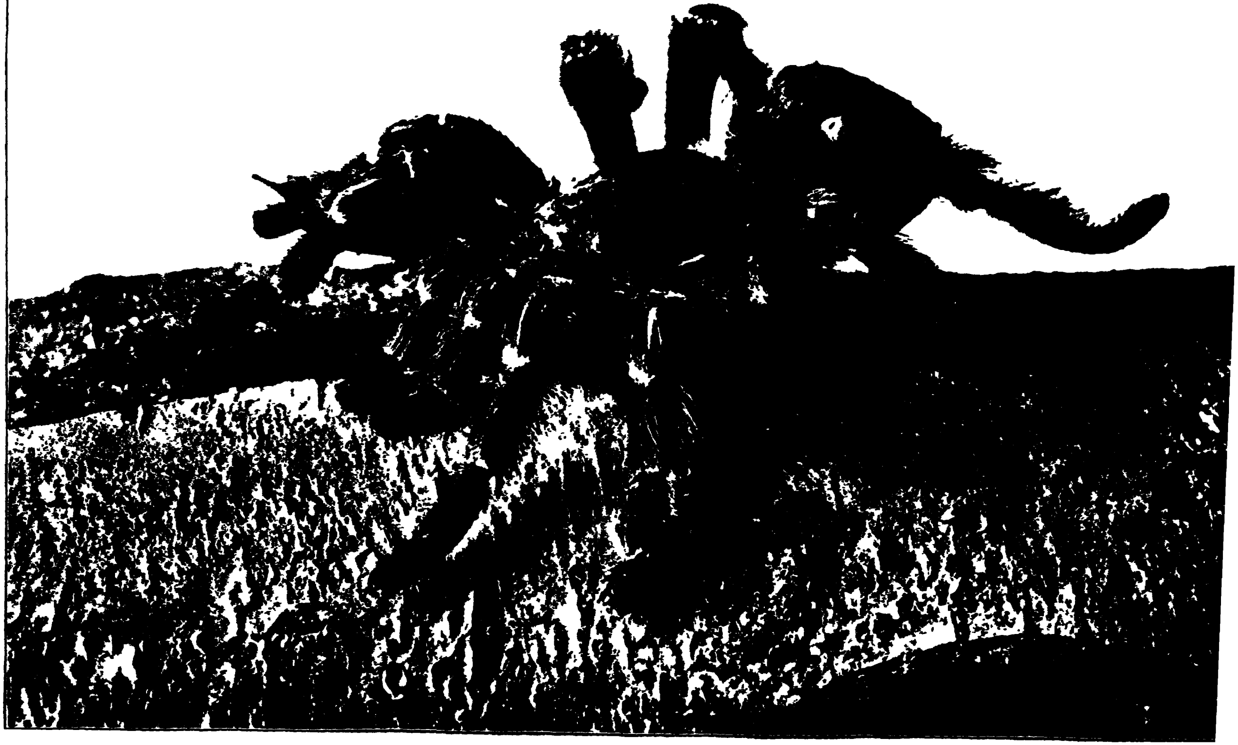

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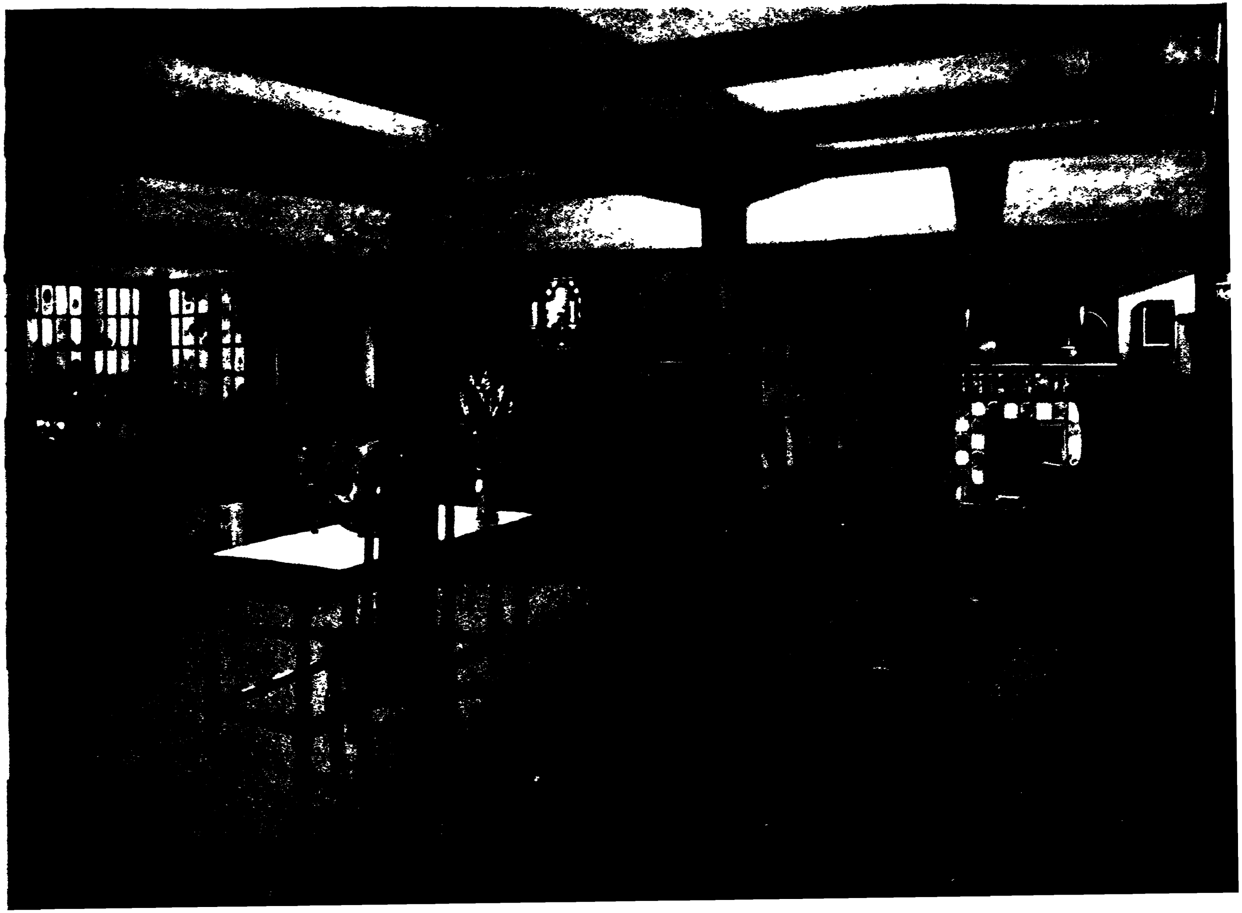

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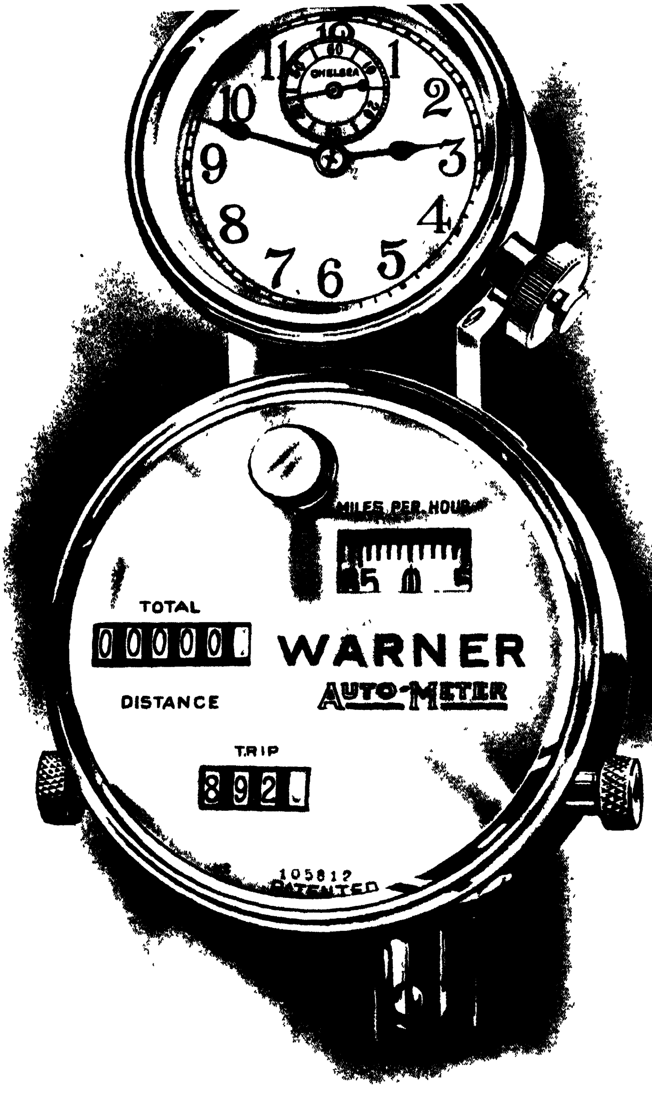

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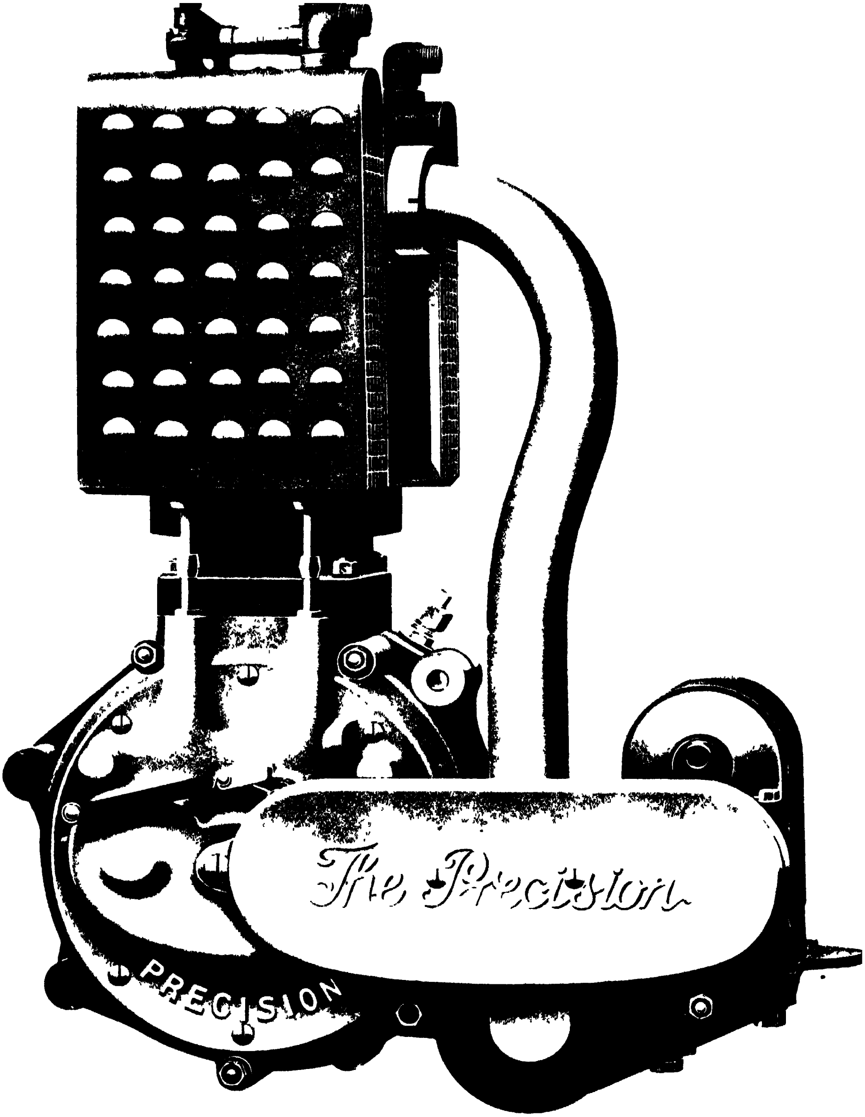

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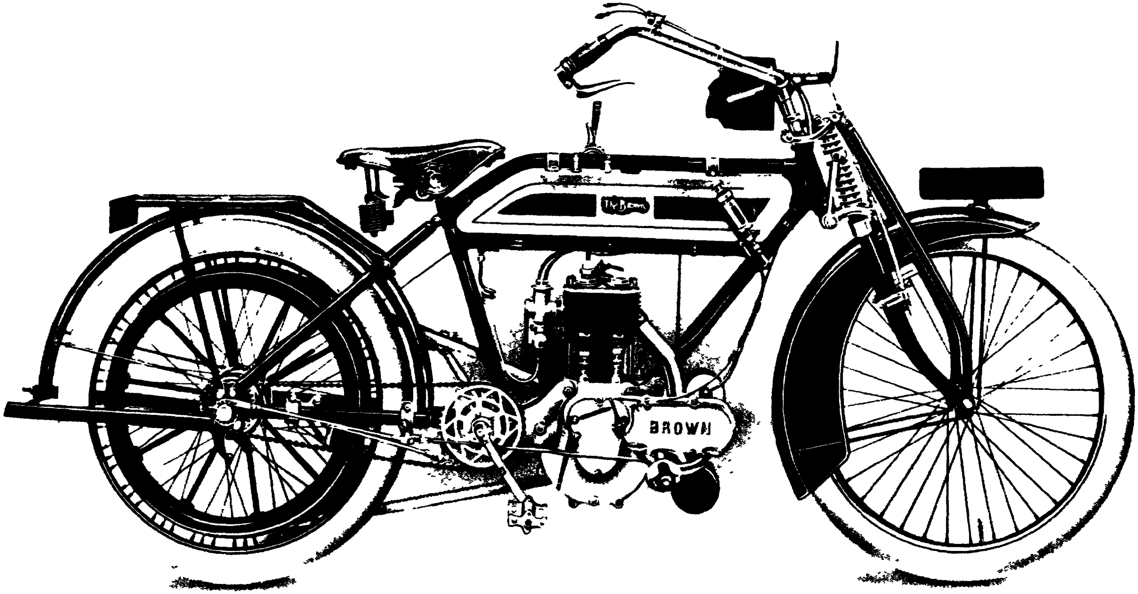

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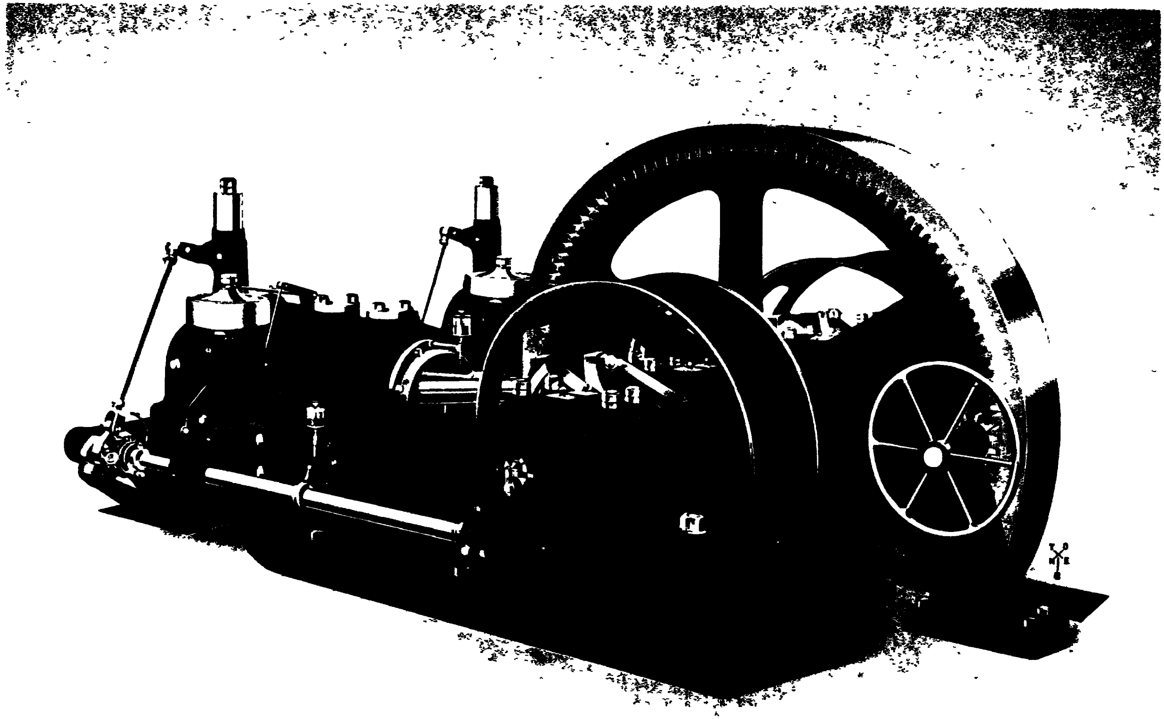

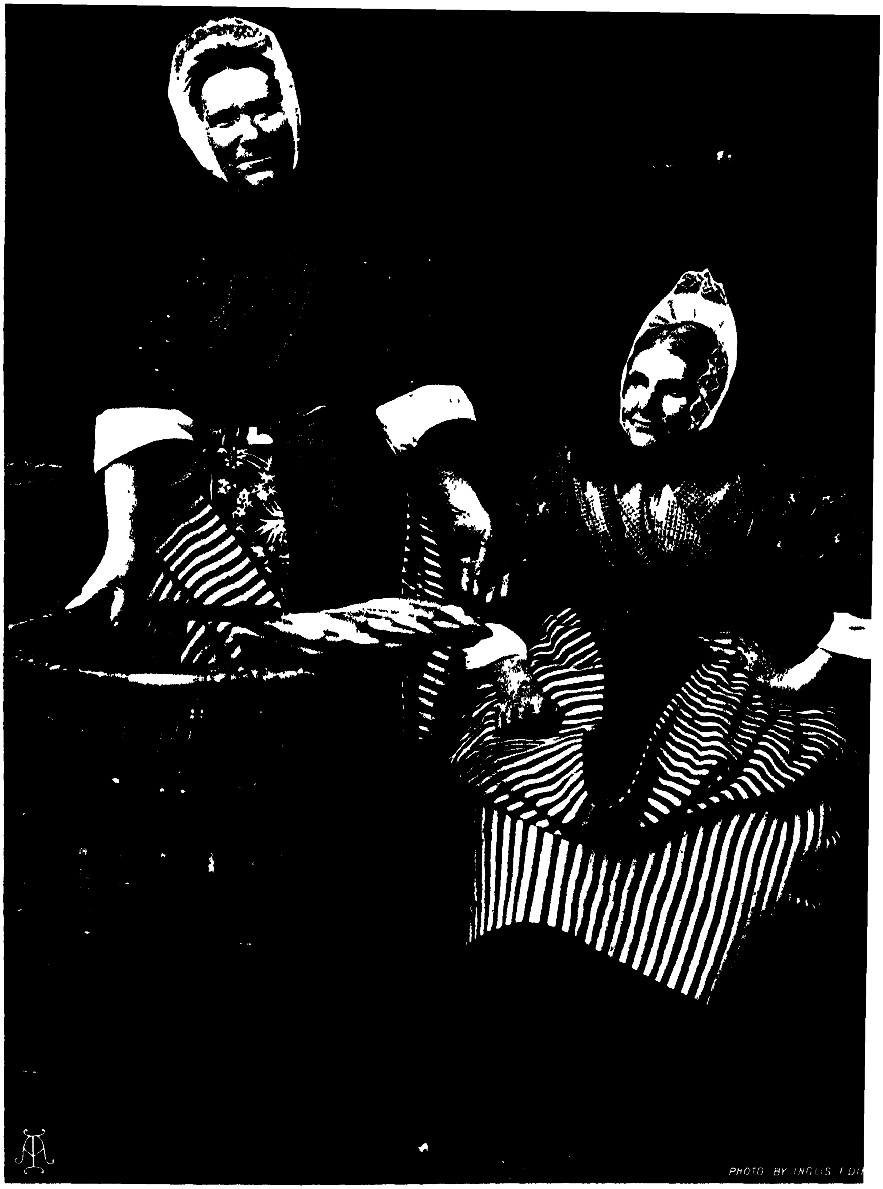

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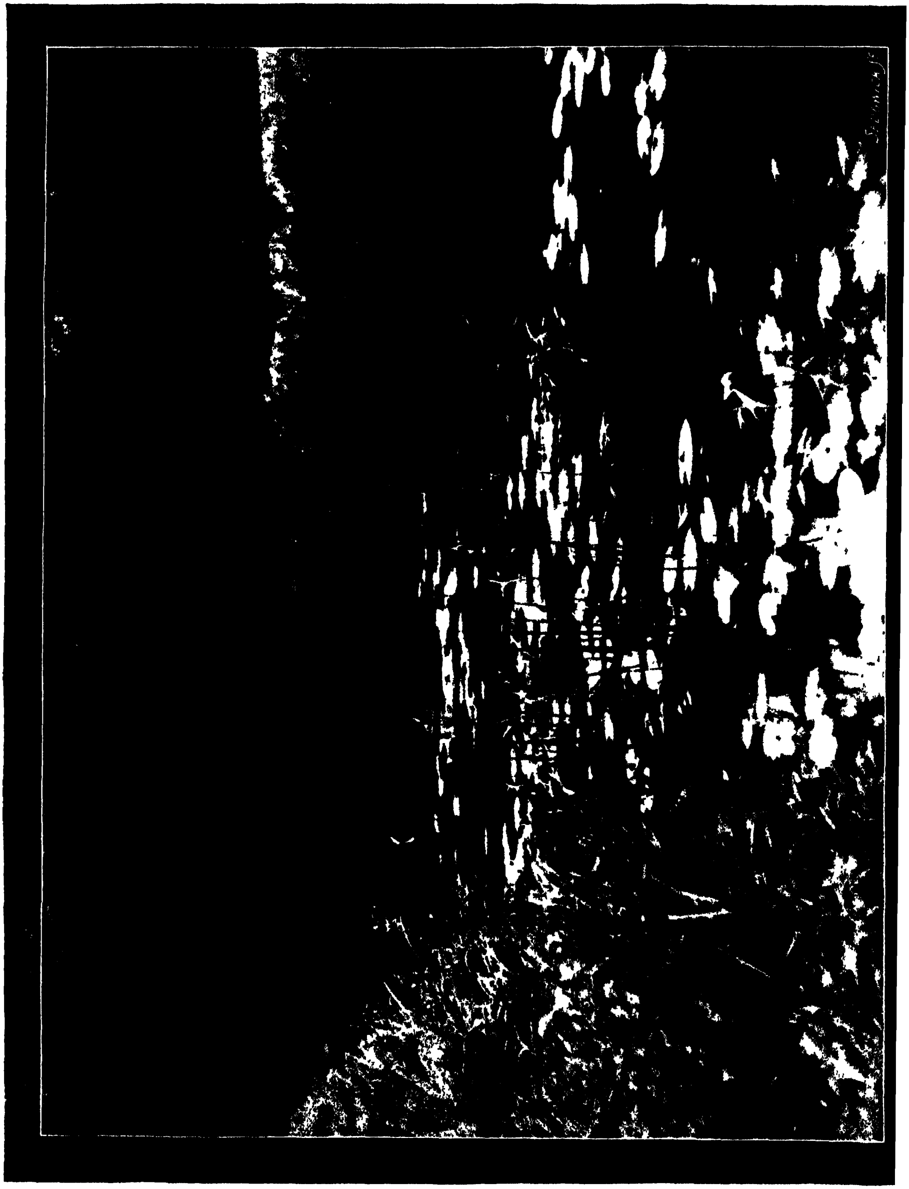

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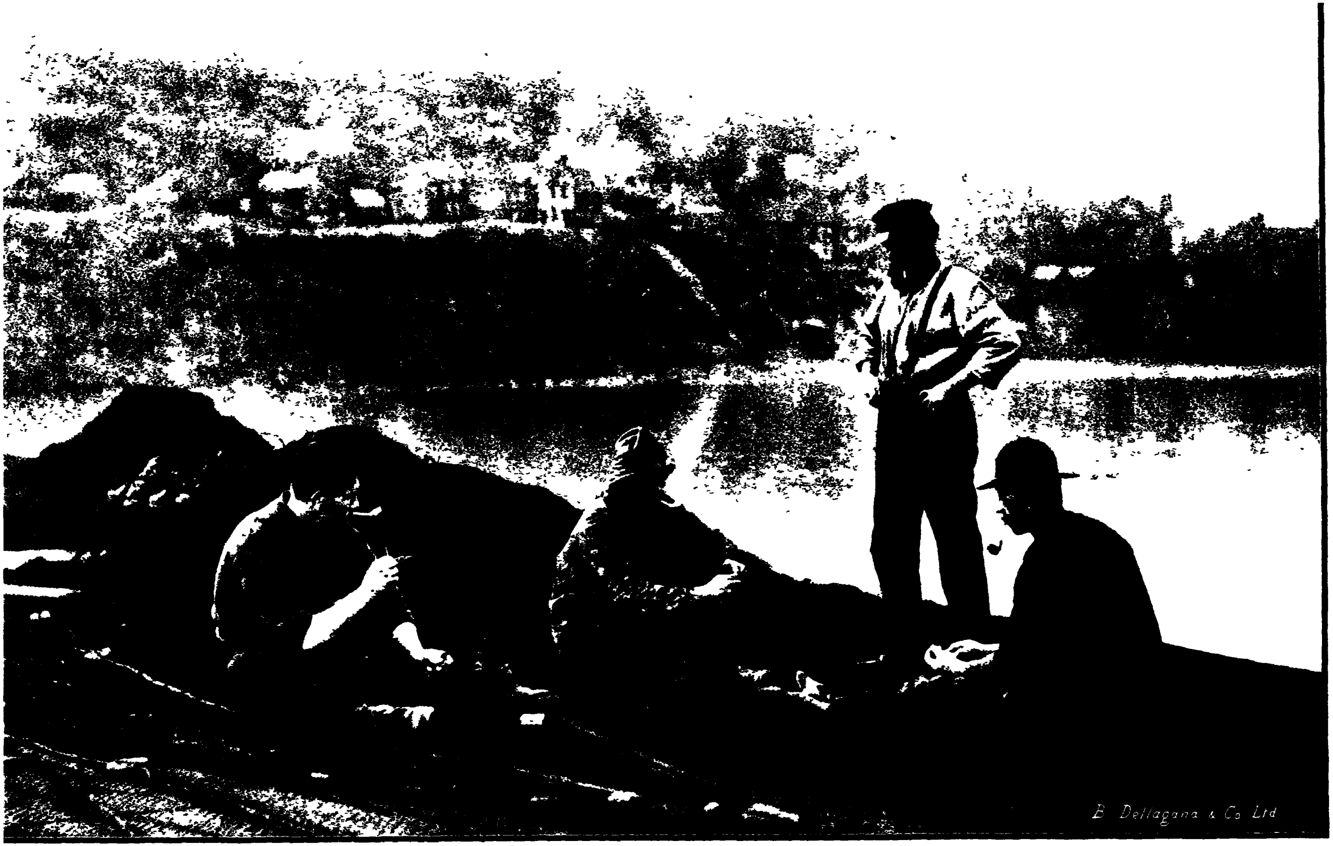

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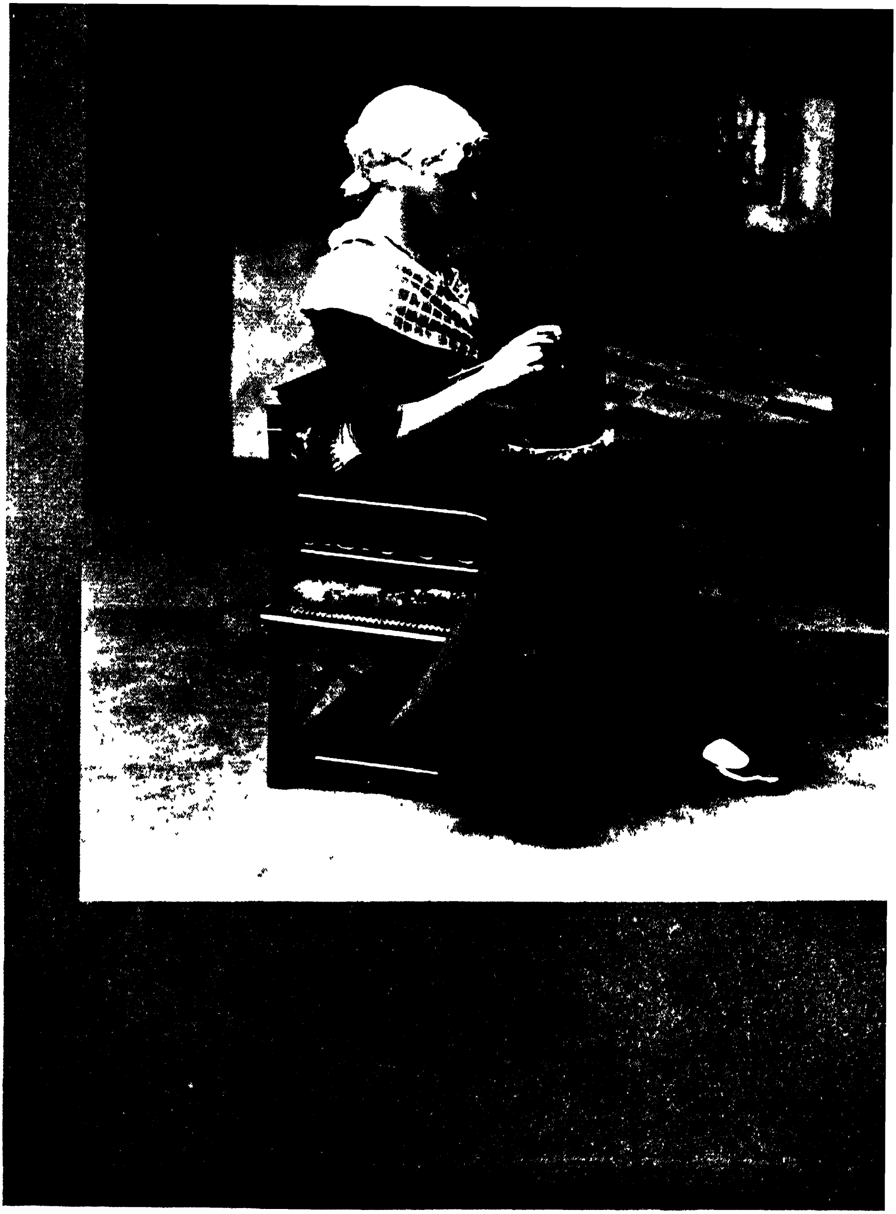

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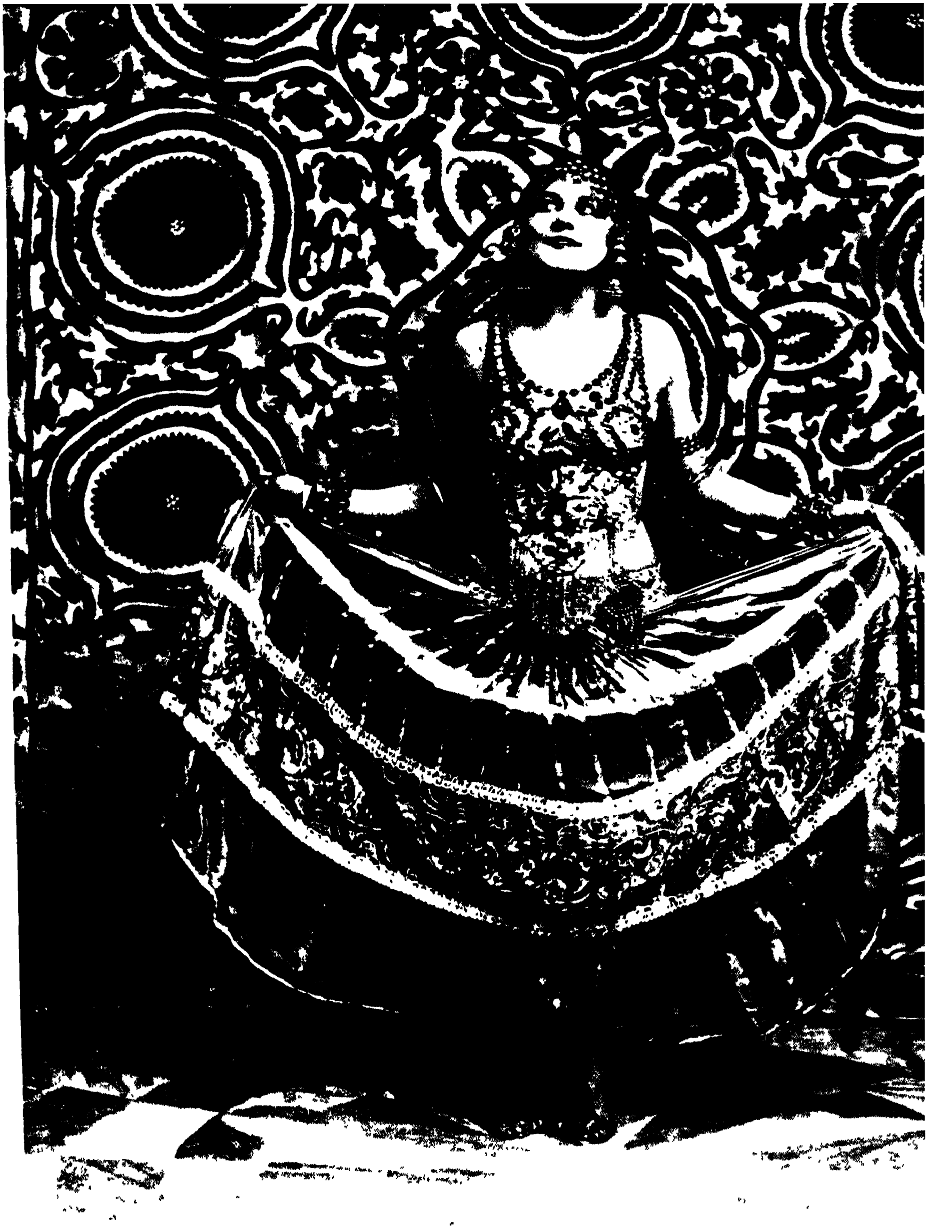

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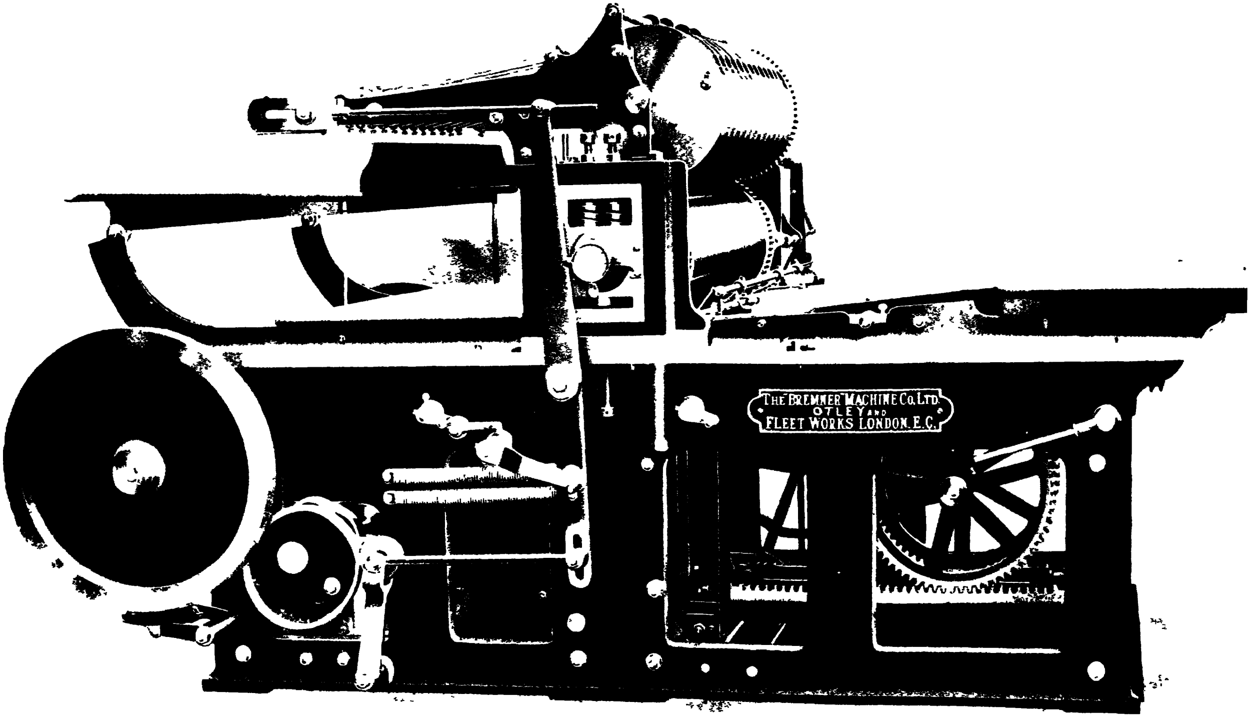

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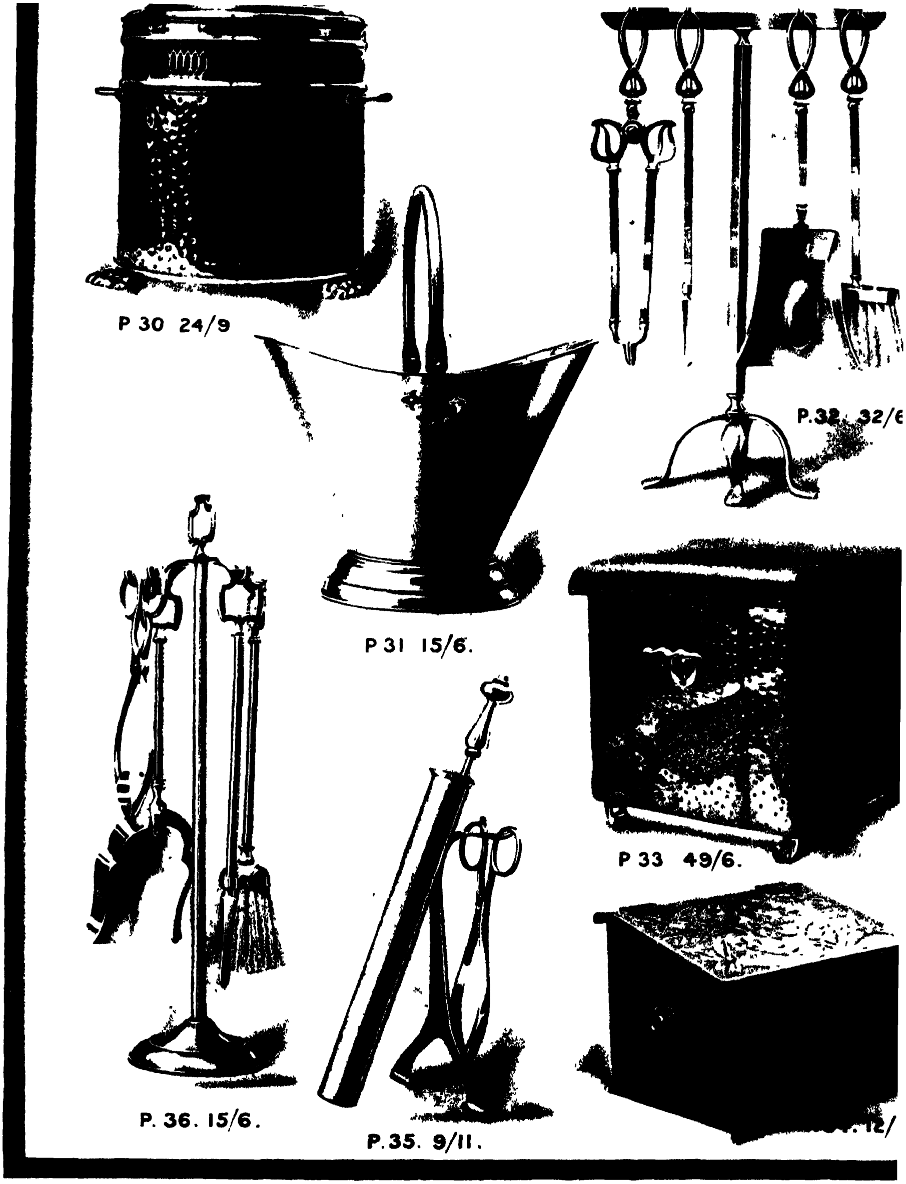
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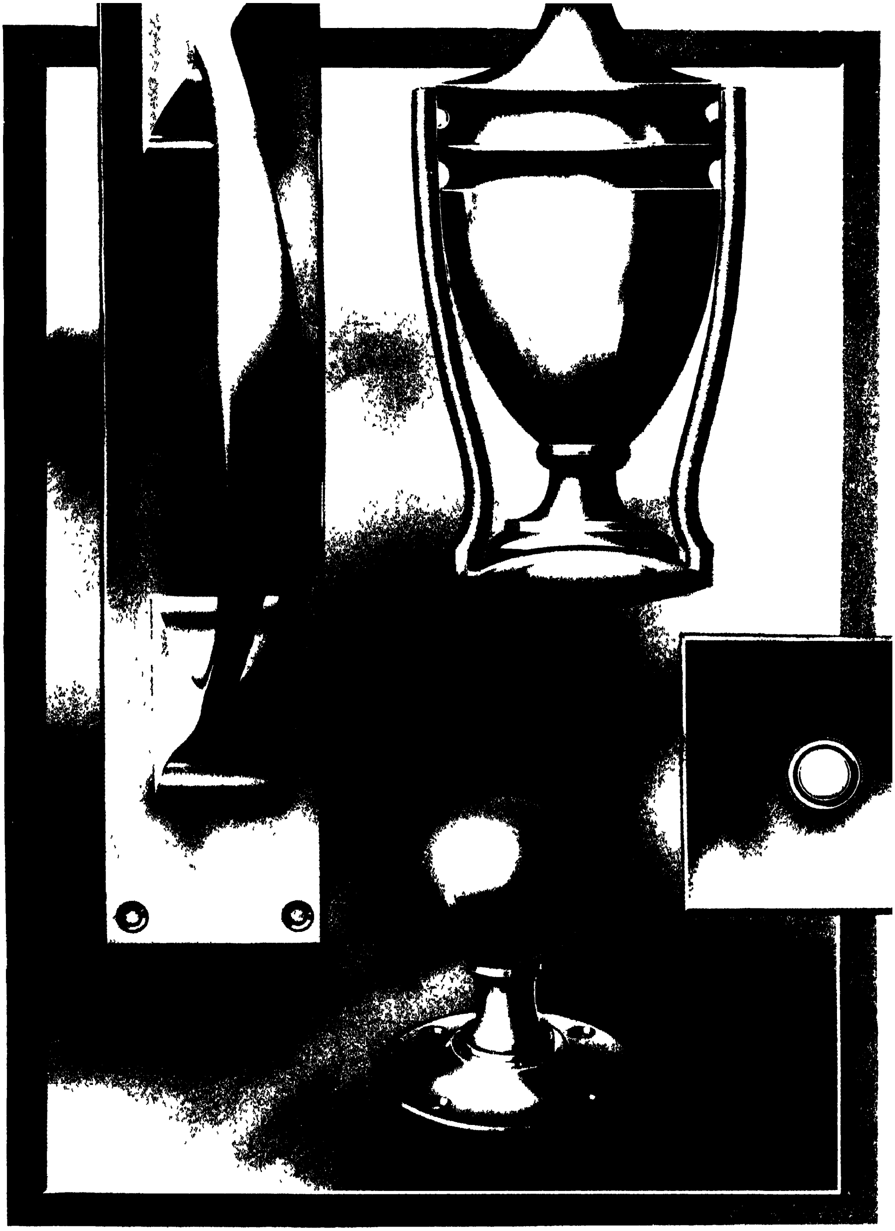

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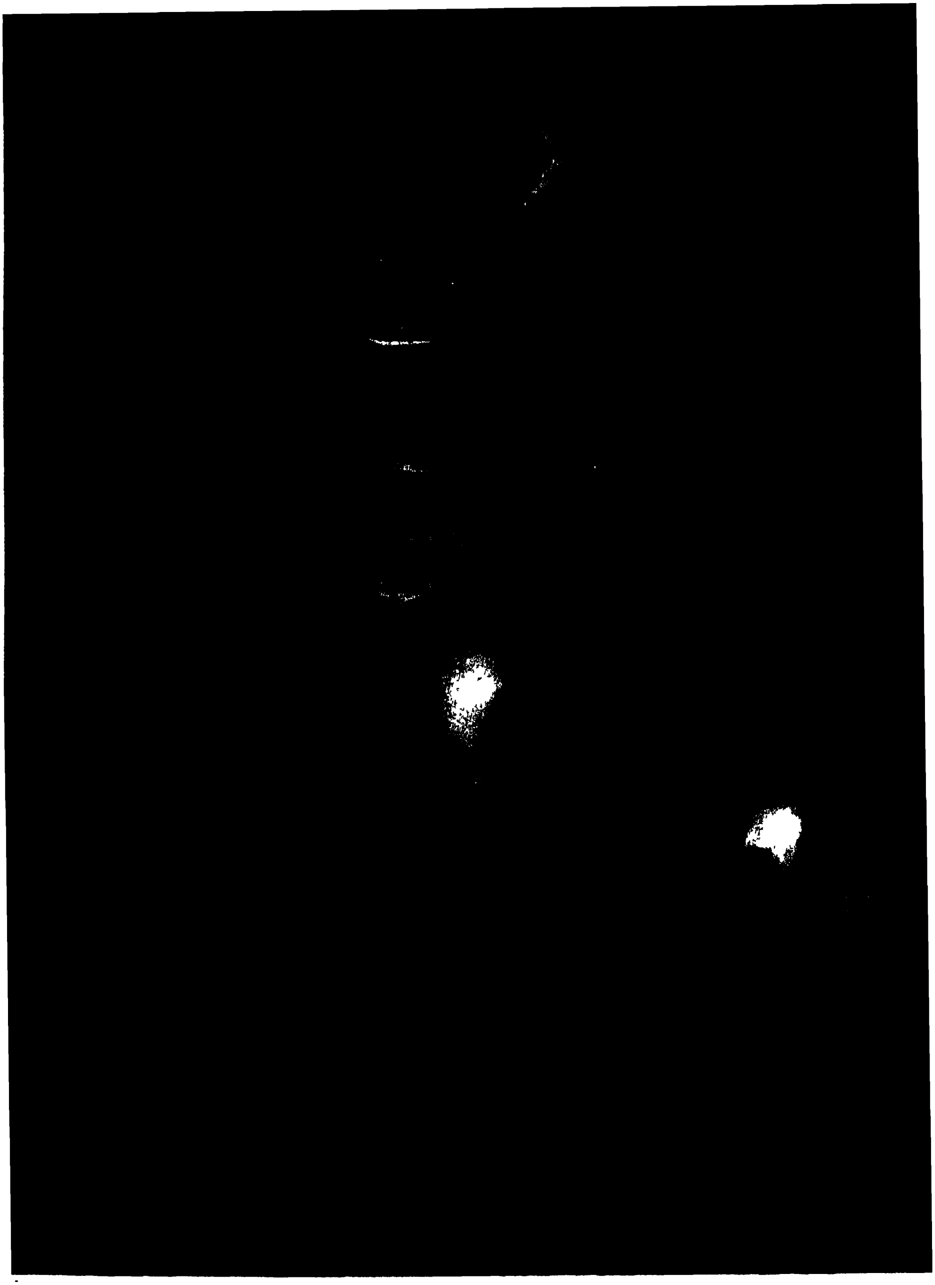

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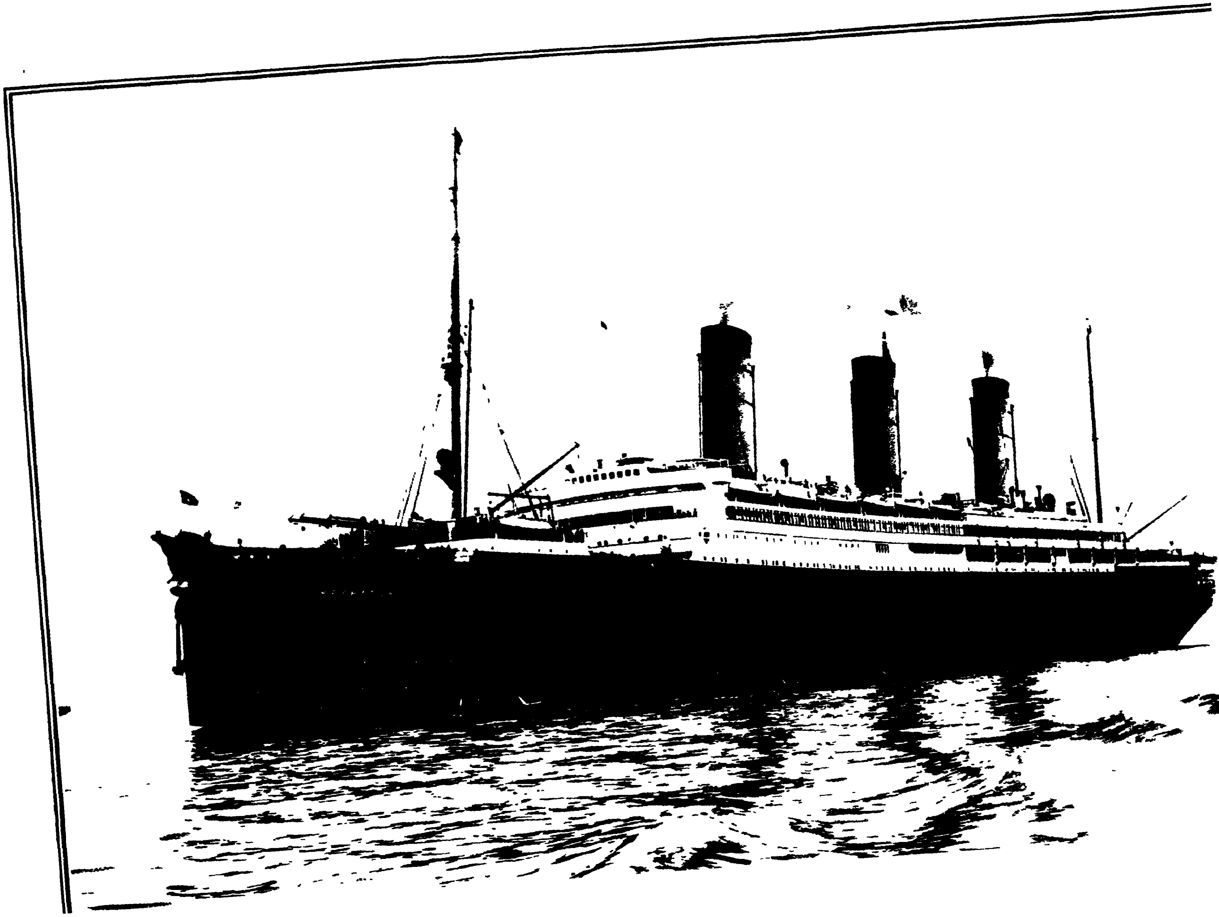

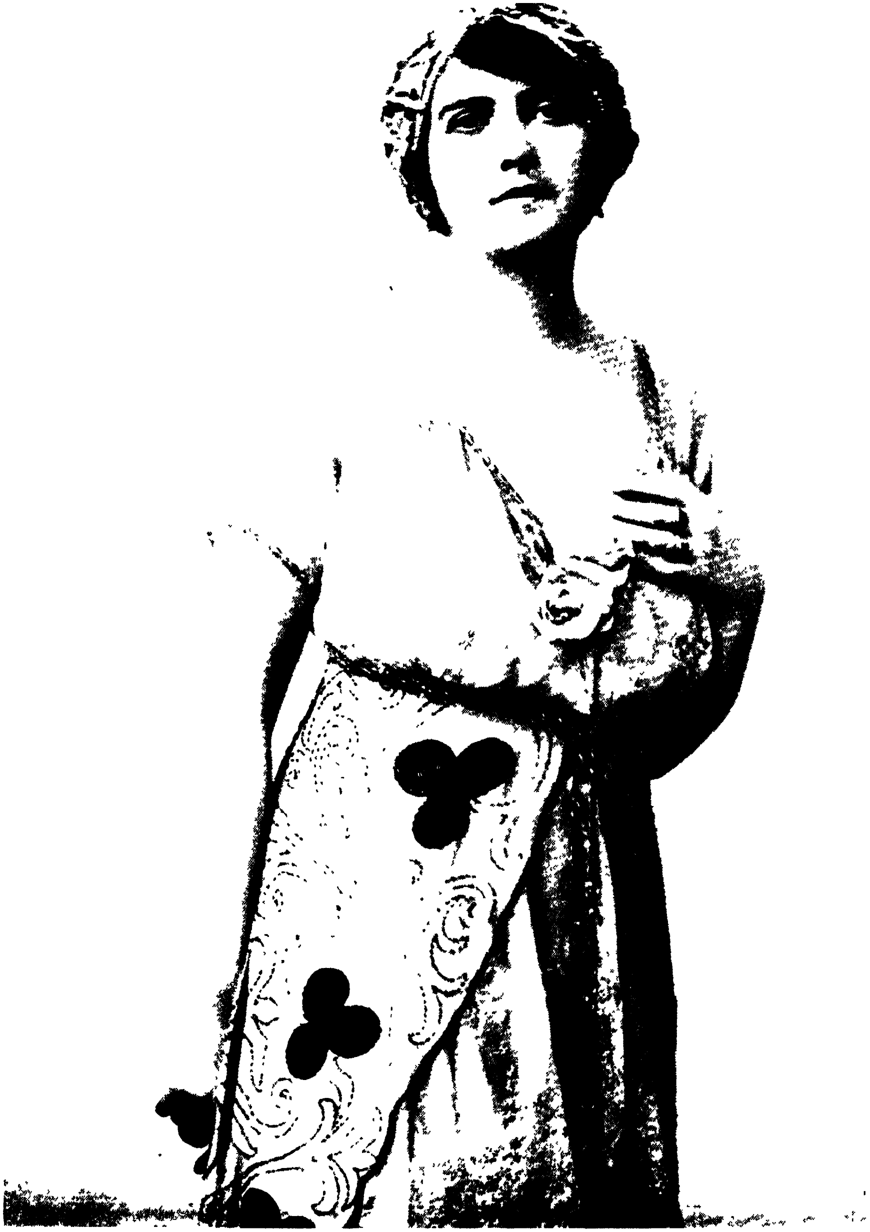

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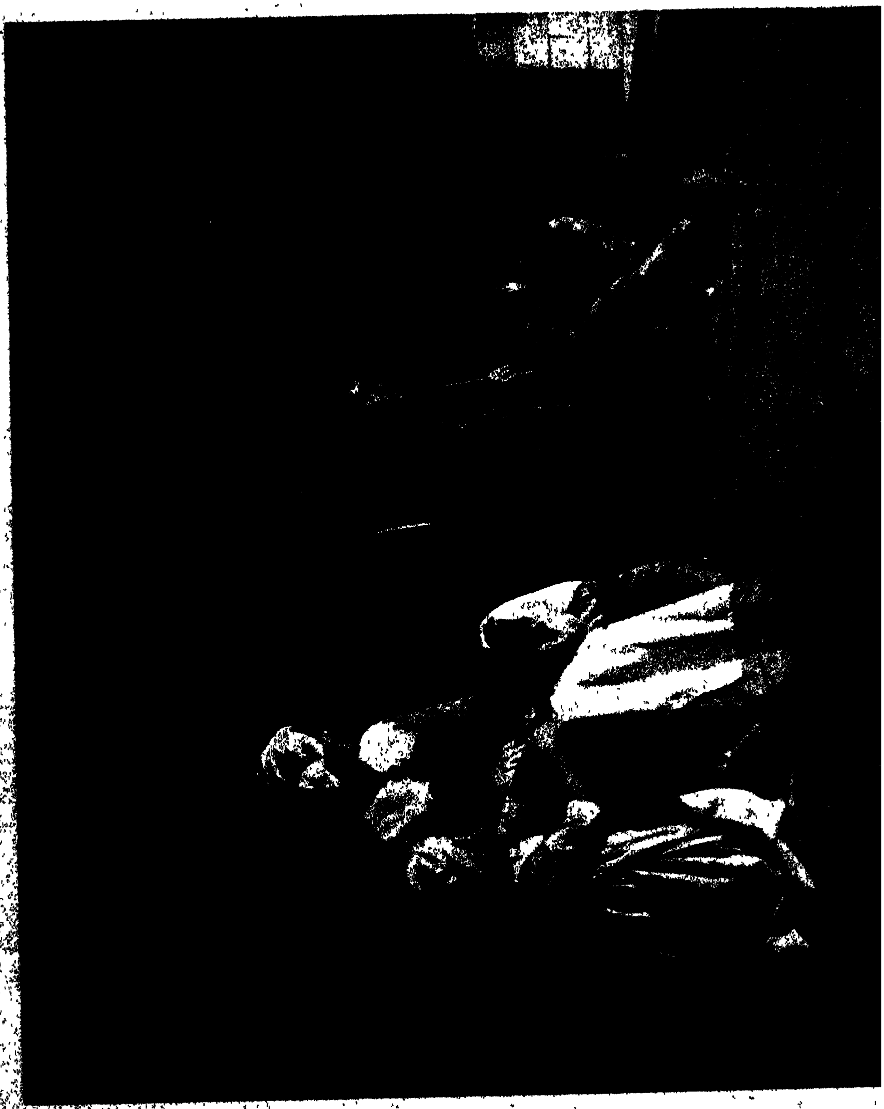

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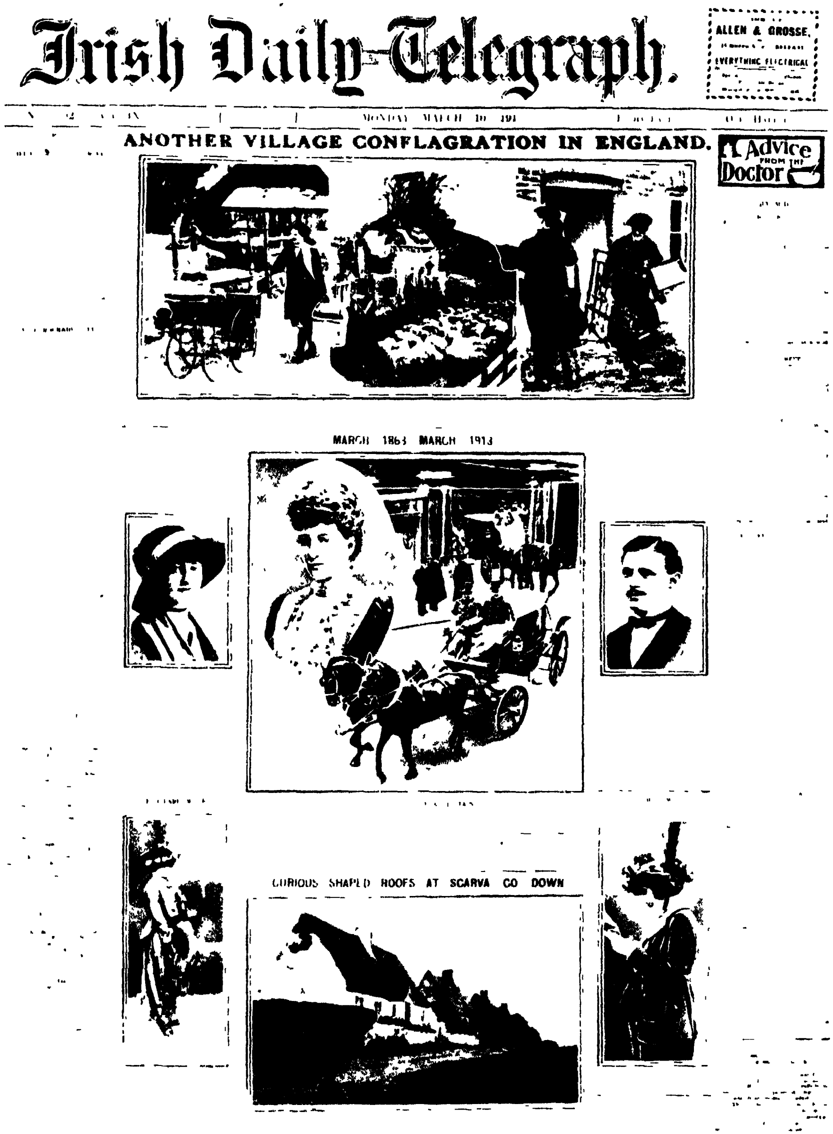

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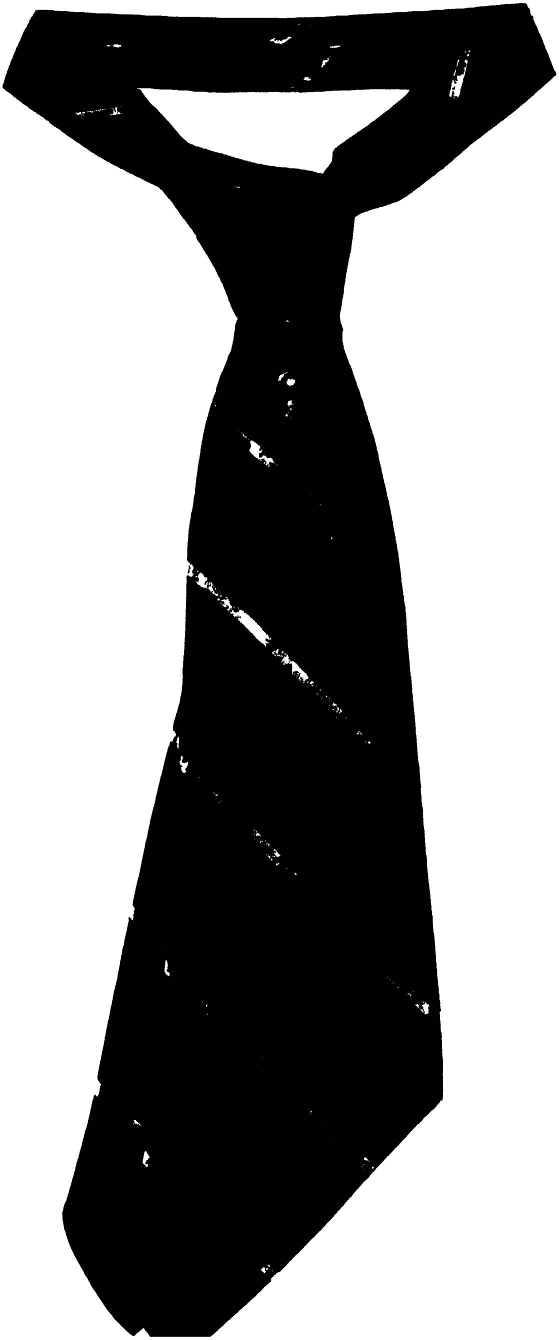

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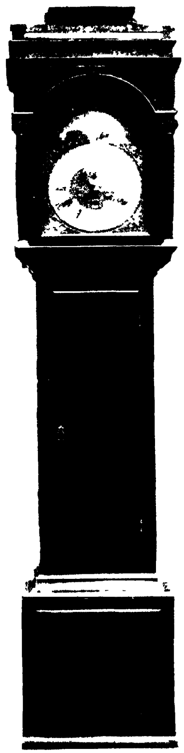

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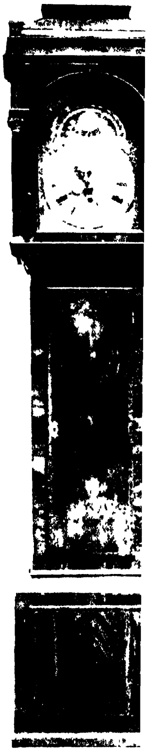

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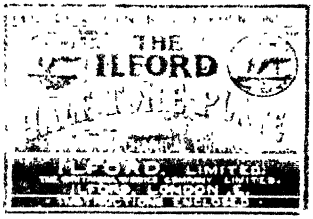

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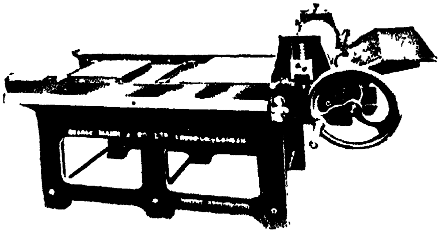

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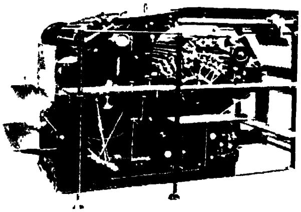

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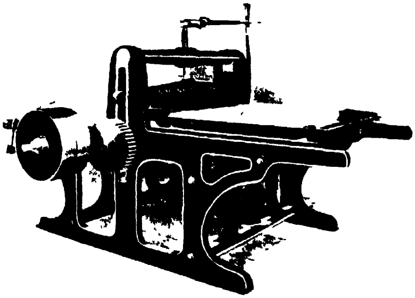

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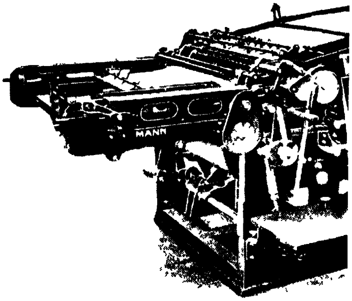

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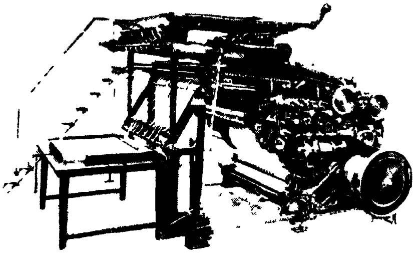

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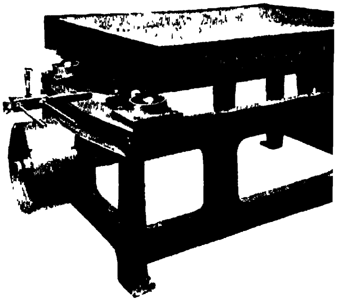

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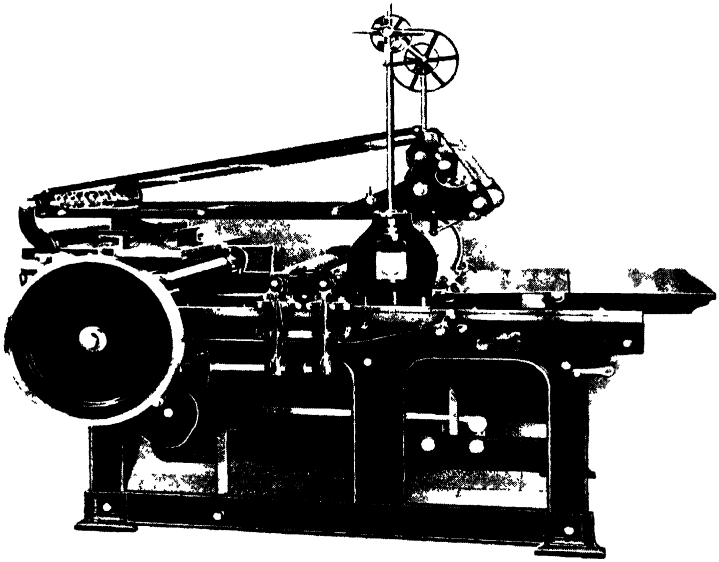

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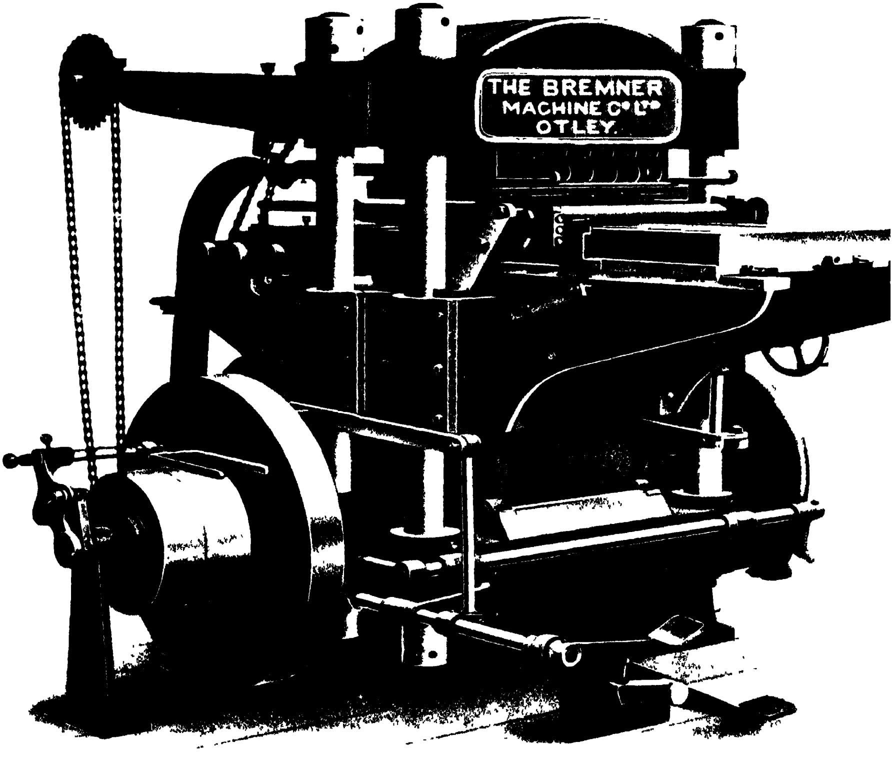

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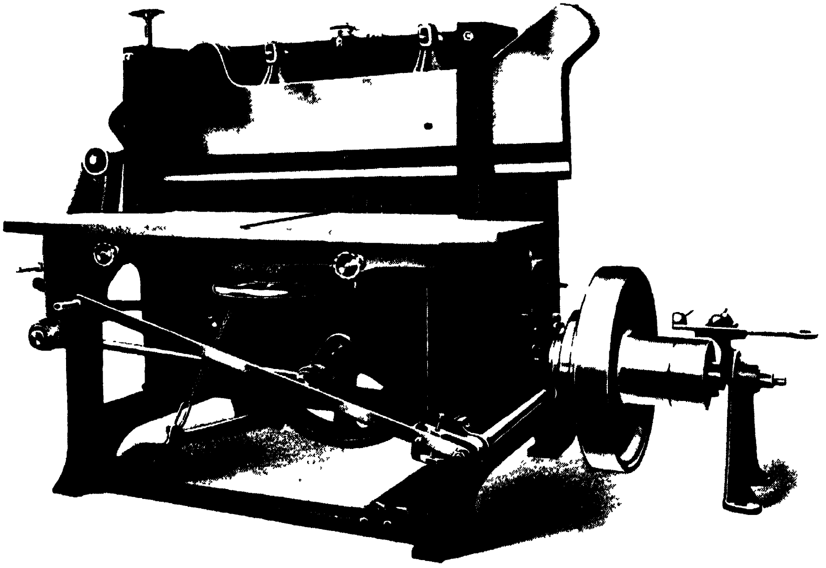

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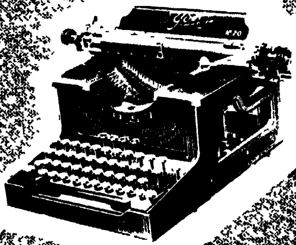

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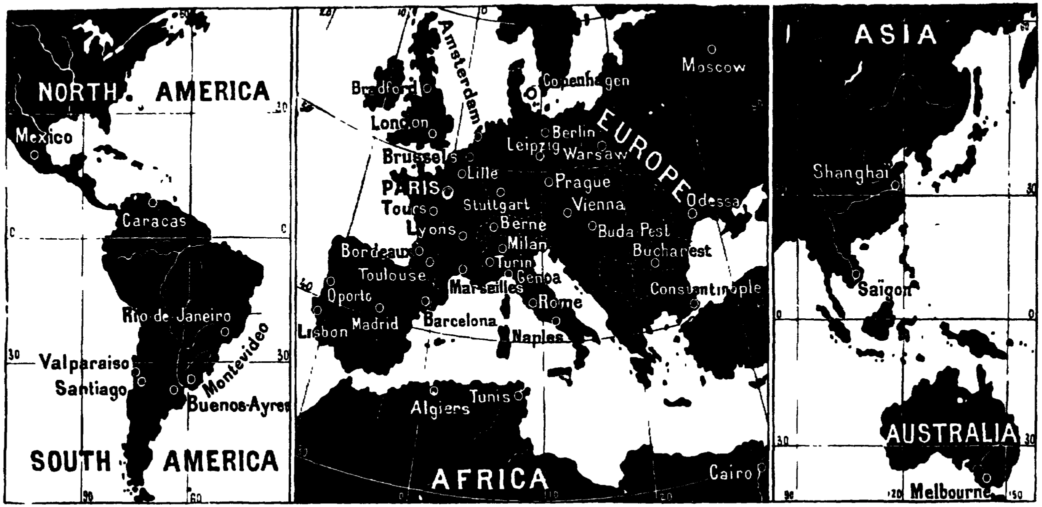

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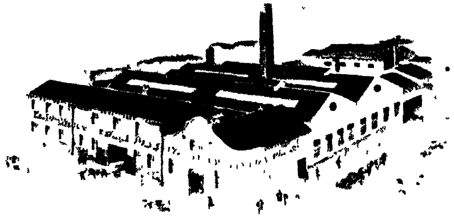

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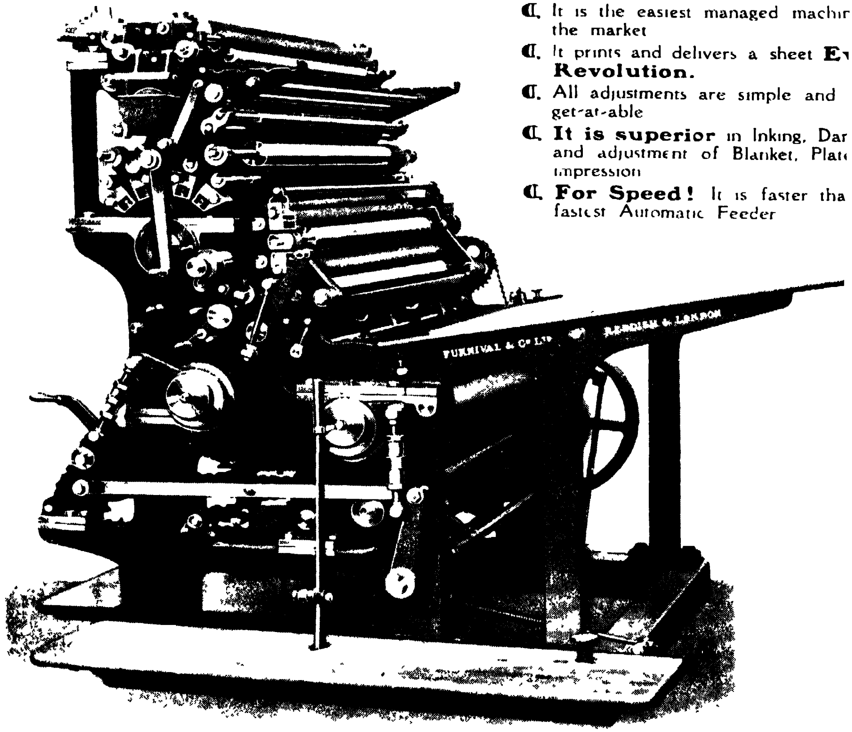

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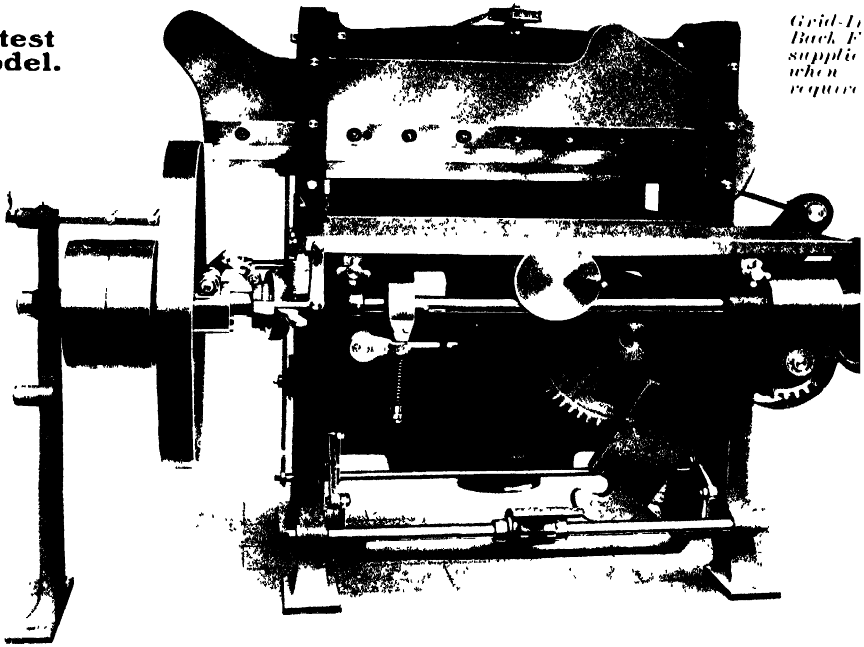

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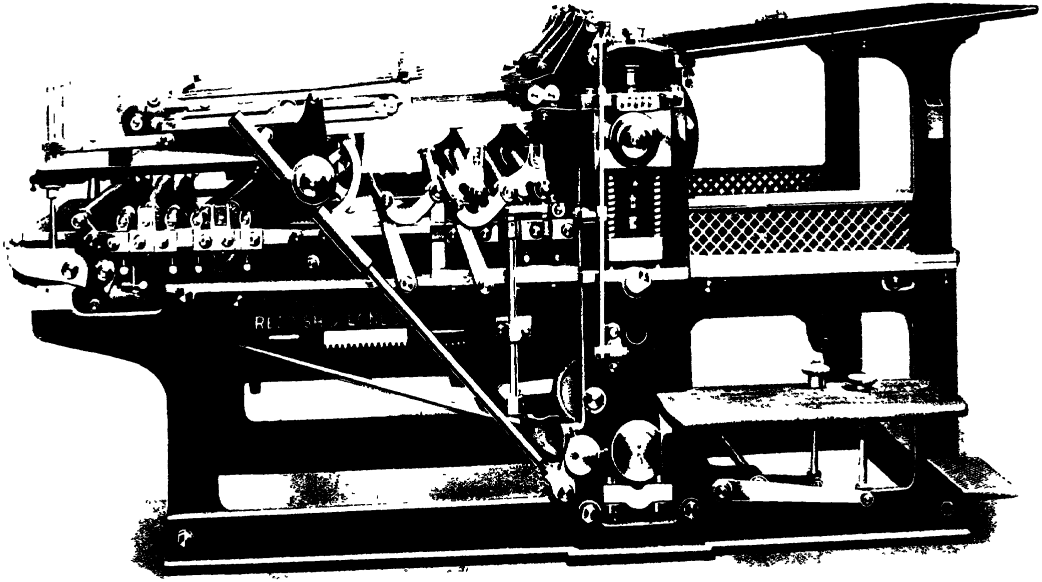

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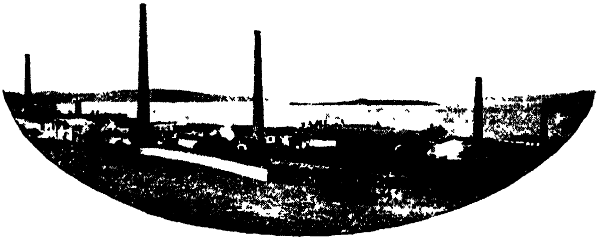

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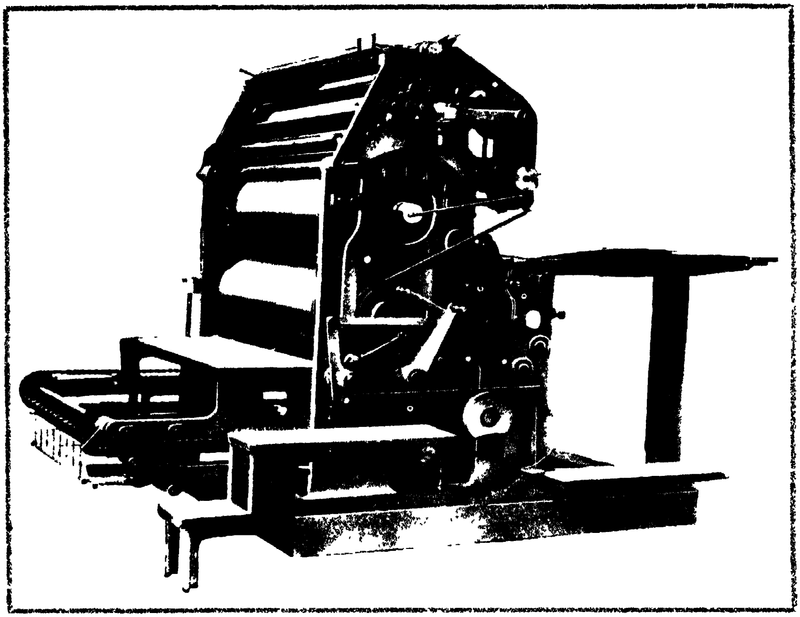

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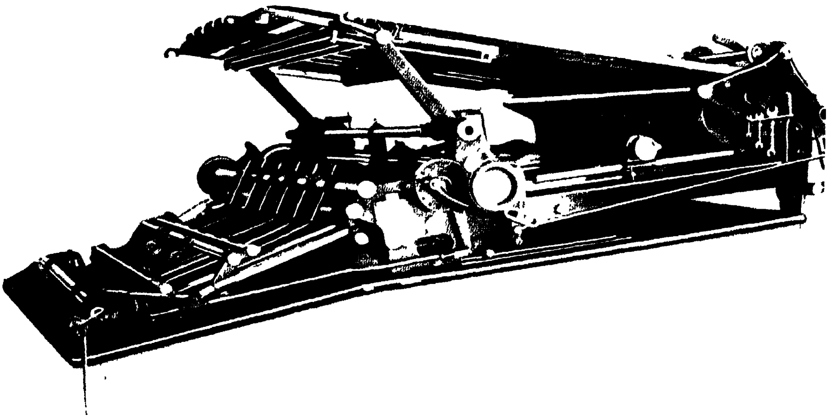

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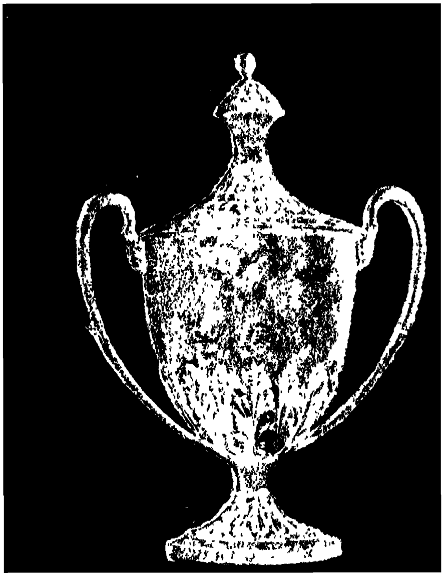

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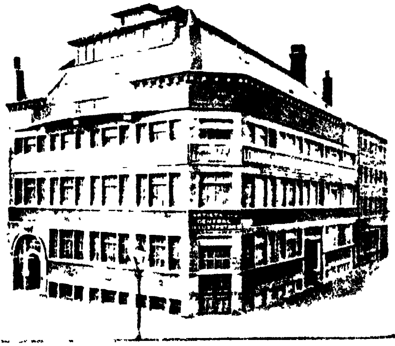

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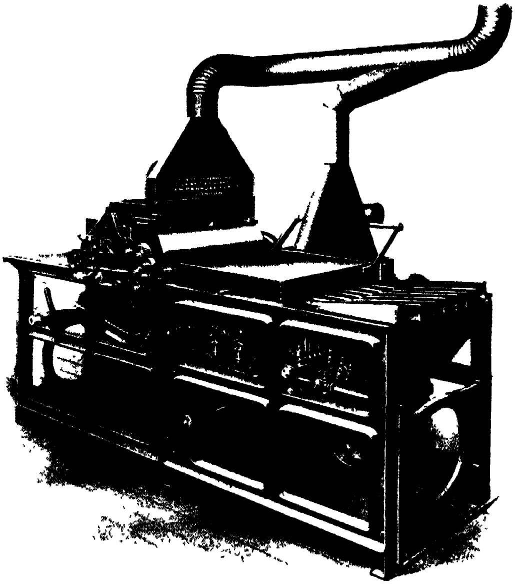

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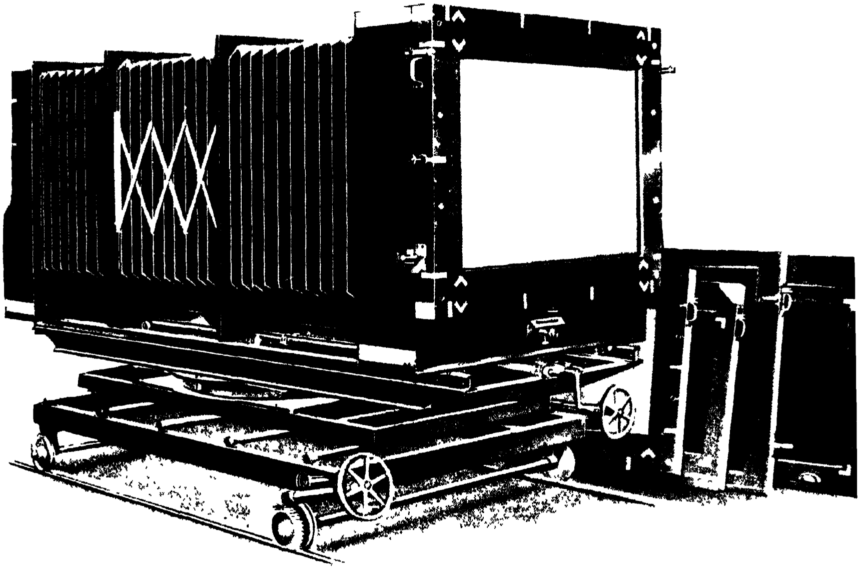

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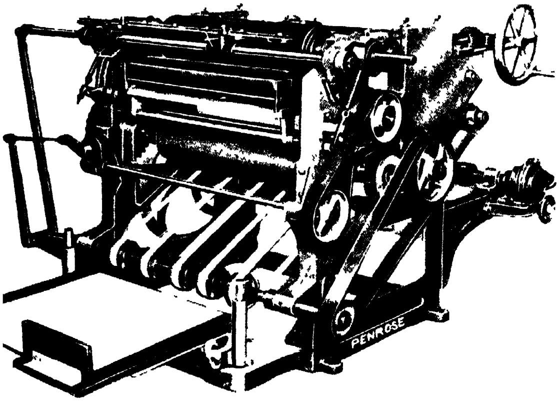

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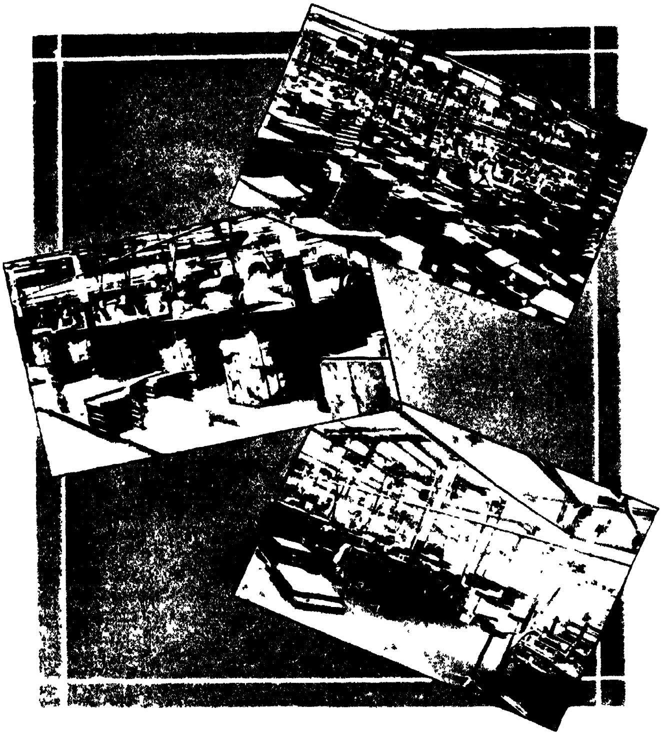

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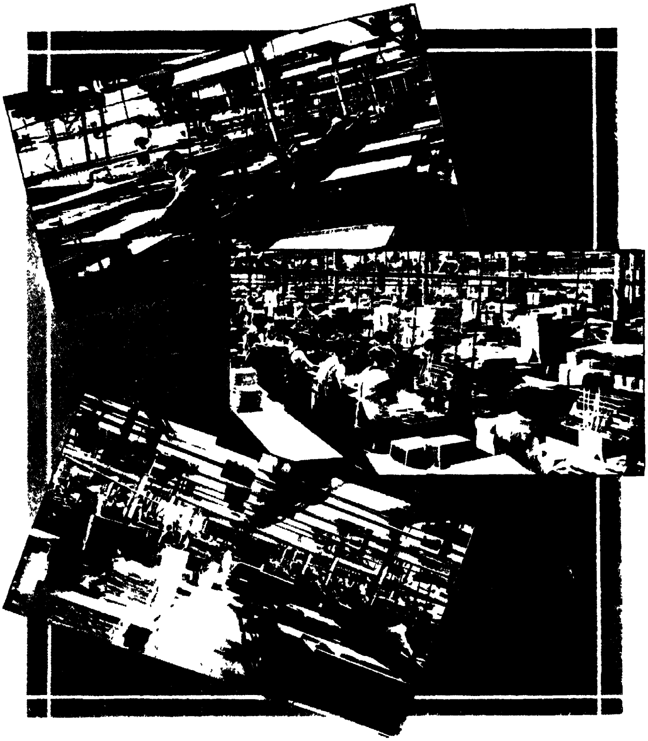

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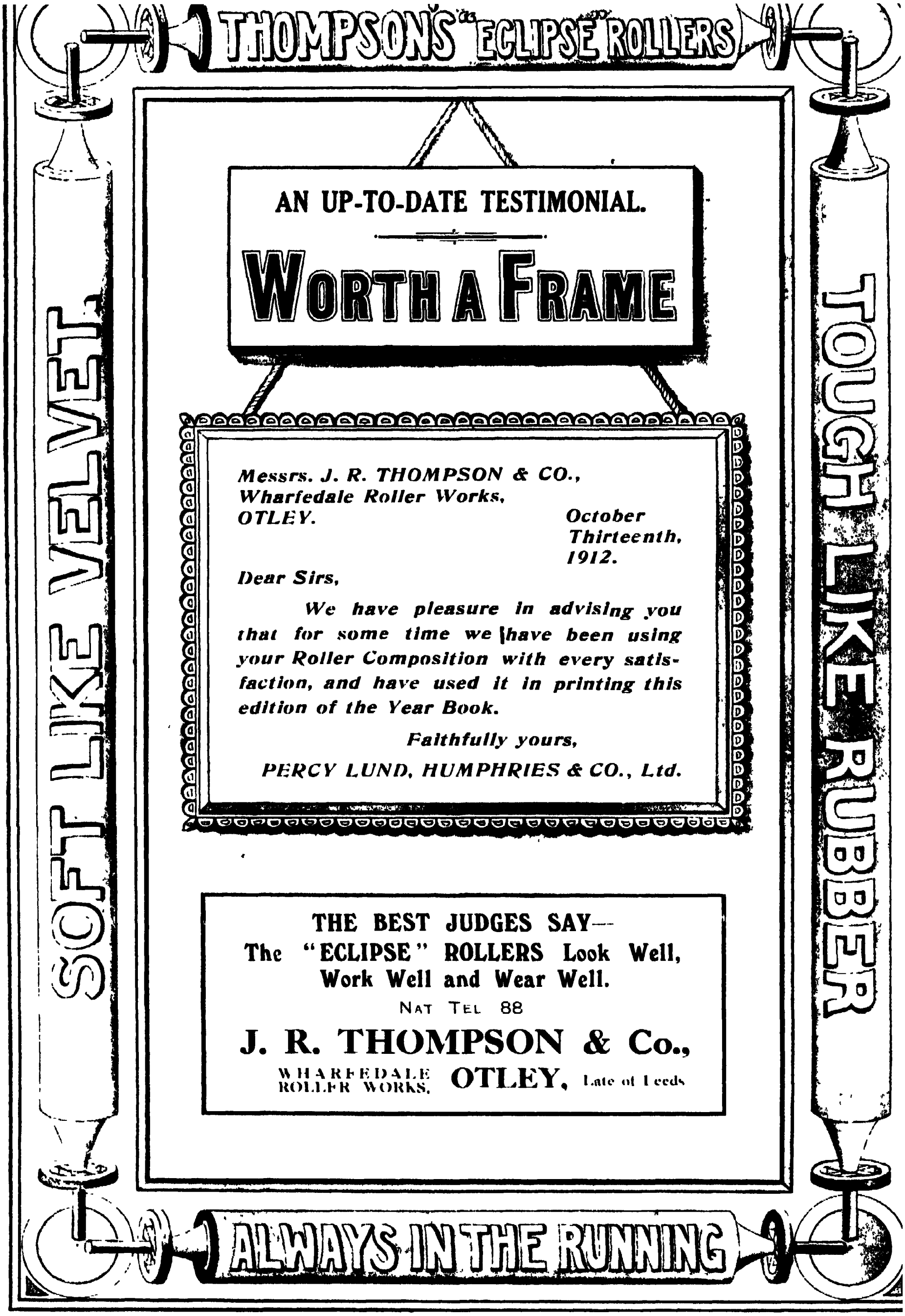

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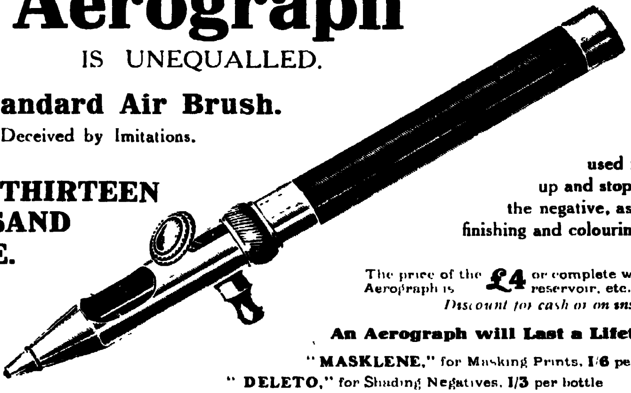

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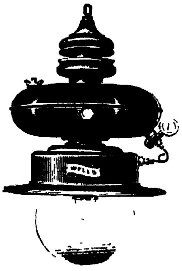

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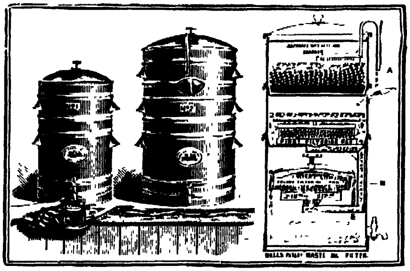

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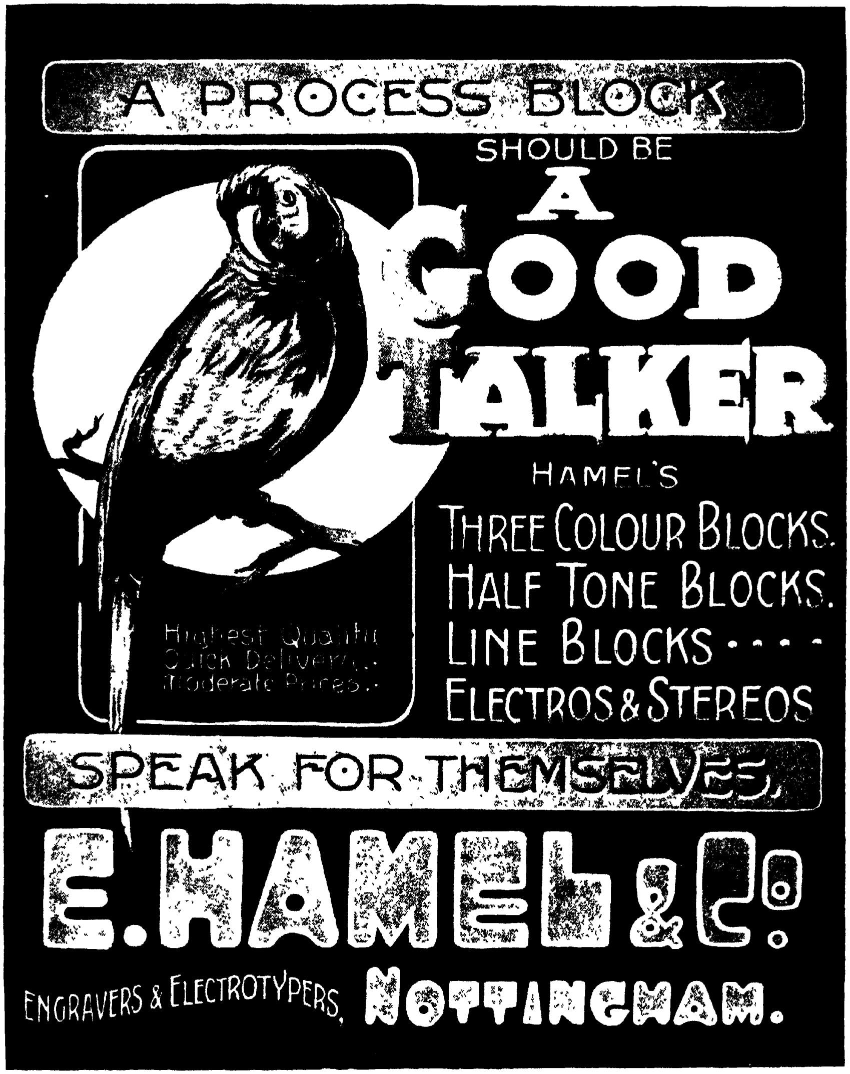

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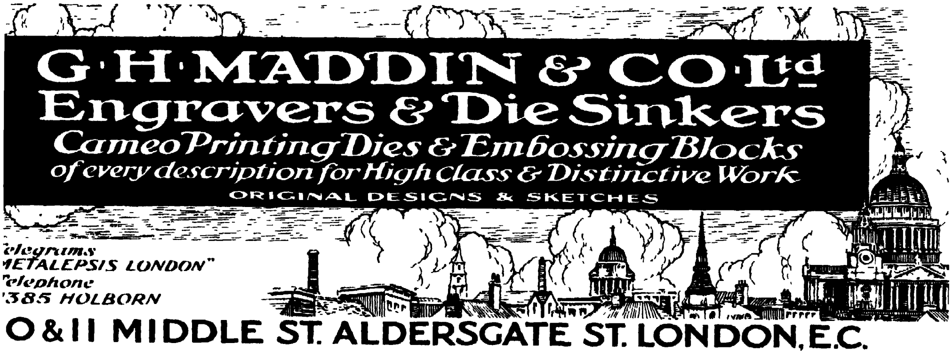

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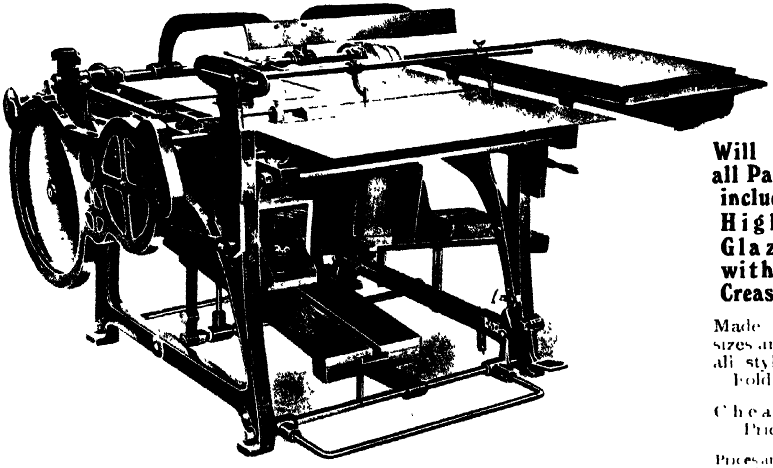

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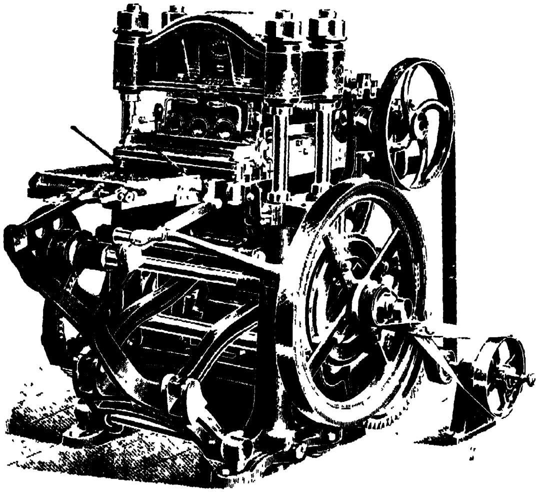

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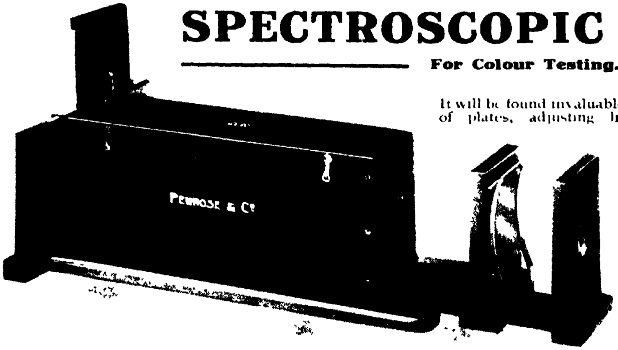

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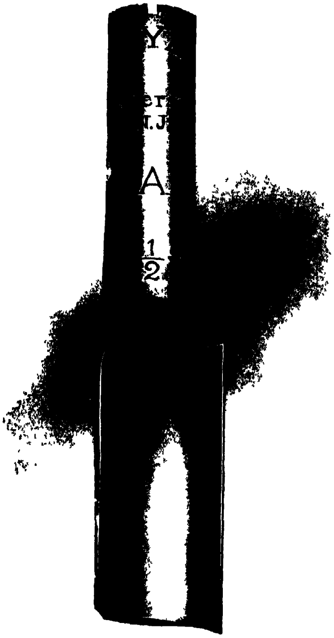

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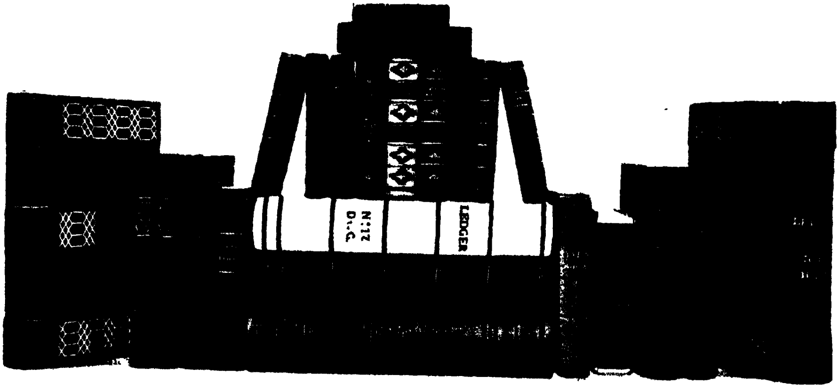

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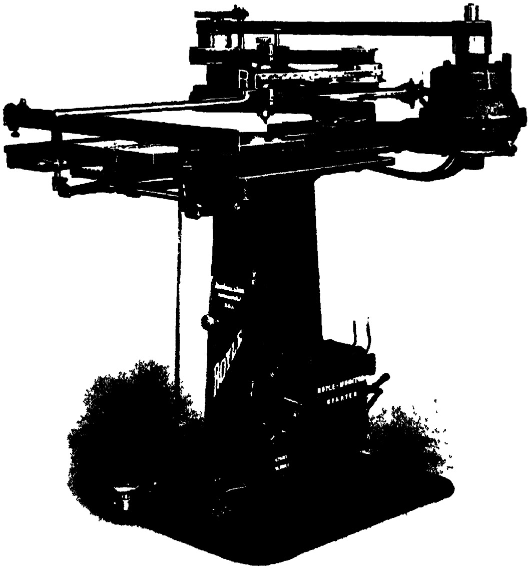

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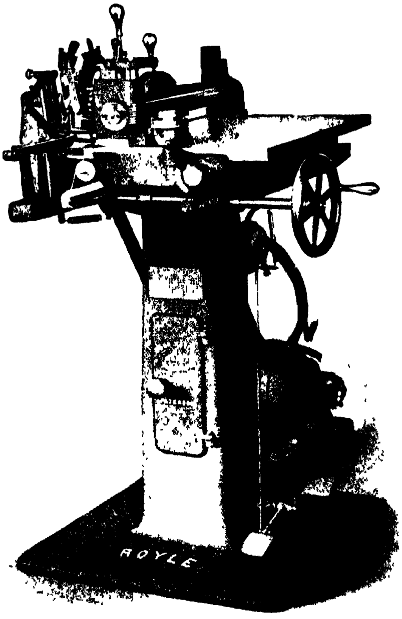

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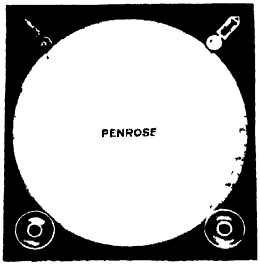

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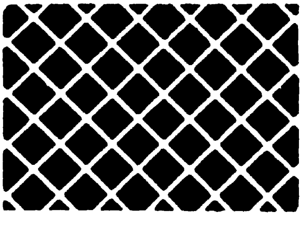

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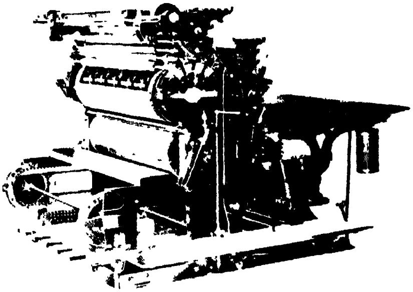

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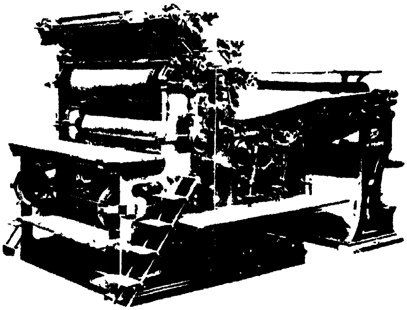

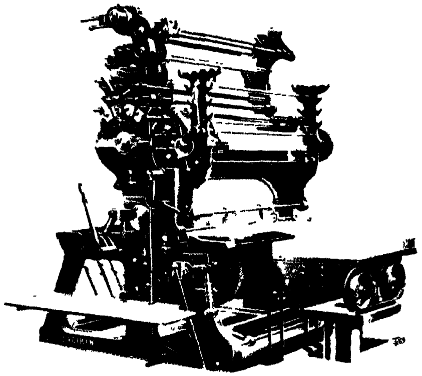

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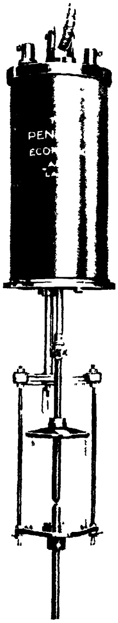

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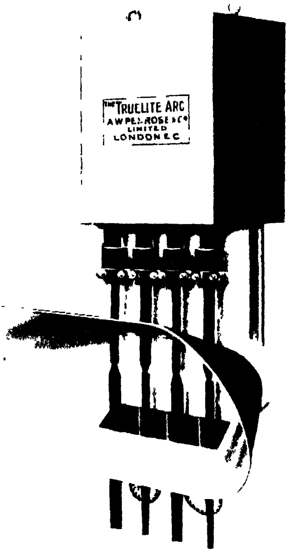

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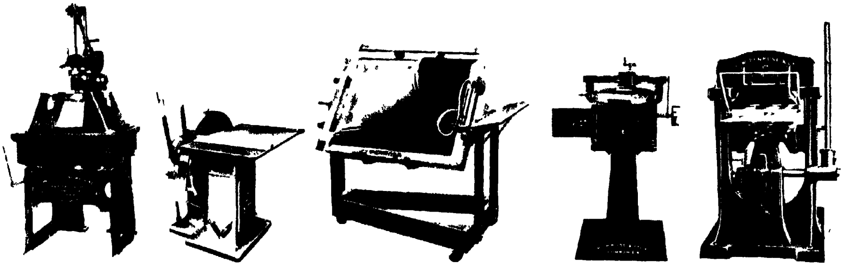

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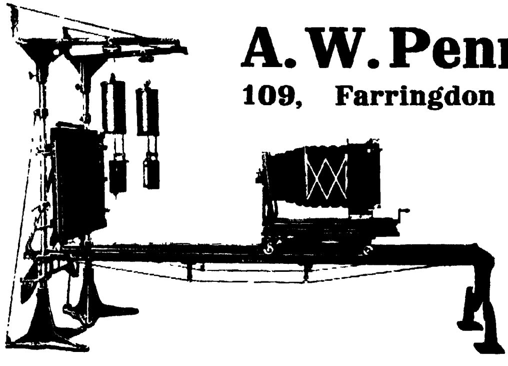

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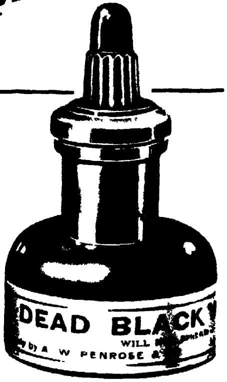

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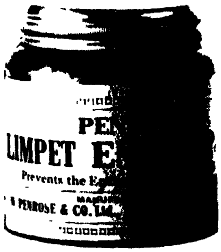

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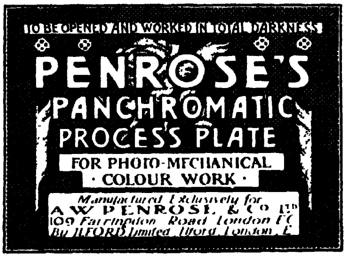
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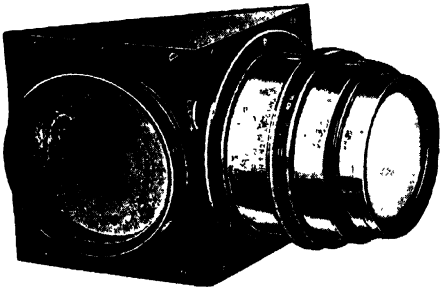

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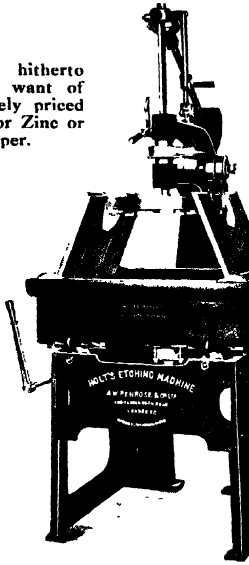

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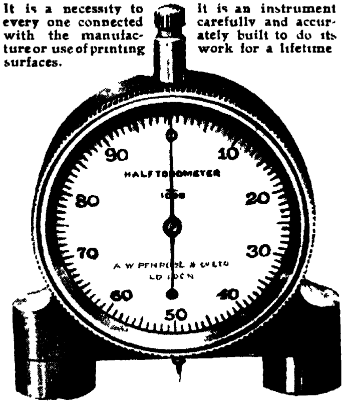

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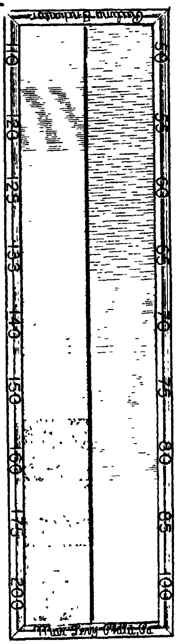

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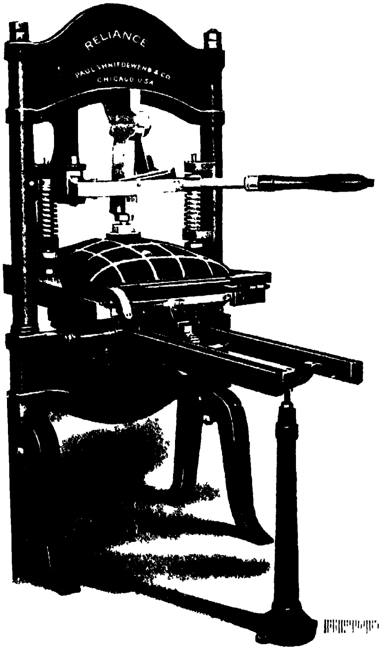

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INDEX TO ADVERTISERS.

PAGE

Aerograph Co., Ltd., The, 43, Holborn Viaduct, London, E.C. .. 46
Allen, F. W. Bonzer Road, Twickenham .. 35
American Agencies, Ltd., 76, Turnmill Street, London, E.C. .. 67
Anglo Engraving Company, Ltd., Milford House, Milford Lane, Strand, London, W.C. *End sheet* v
Andrews, Edward, 10, East Parade, Leeds .. 54
Ault & Wiborg London Co., The, 4 & 5, St. John's Square, London, E.C. .. 33
Badoureau & Jones, Ltd., Poppin's Court, Fleet Street, London, E.C. .. 31
Binney & Smith, 63, Farringdon Street, London, E.C. .. 55
Borne & Co., 17, Wool Exchange, London, E.C. .. 44
Bremner Machine Co., Ltd., Wharfedale Ironworks, Otley .. 12
British Leather Cloth Manufacturing Co., Ltd., The, Hyde, near Manchester .. 64A
British Printer, The, De Montfort Press, Leicester .. 58
Caxton Magazine, The, 124, Holborn, London, E.C. .. 60
Coates, Bros. & Co., Ltd., 8, Salisbury Square, Fleet Street, London, E.C. .. 23
Cox Illustrating Co., Ltd., The Arthur, 63 & 64, Ludgate Hill, Birmingham .. 26
Crosland, William, Ltd., Bredbury, near Stockport .. 14
Cross Paper Feeder Co., The, 92, Fleet Street, London, E.C. .. 28
Dickinson, John, & Co., Ltd., Home Park Mills, King's Langley, Herts .. *End sheet* i
Dixon, L. S., & Co., Ltd., 38, Cable Street, Liverpool, and 62, Carter Lane, London .. 22
Douglas, Stott & Co., Hillside Colour Works, Abbey Street, Edinburgh .. 7
Engraving Co., Ltd., The, 20 Queen Street, Wolverhampton .. 51
Eyre & Spottiswoode, Ltd., New Street Hill, Shoe Lane, London, E.C. .. 50
Fleming, A. B., & Co., Ltd., Caroline Park, Edinburgh .. 21
Fleming, David B. 43 & 45, Old Wynd, Trongate, Glasgow .. 15
Friedheim, Oscar, Ltd., 7, Water Lane, Ludgate, London, E.C. .. 57
Fuerst Bros., 17, Philpot Lane, London, E.C. .. 34
Furnival & Co., Ltd., Reddish Ironworks, Stockport .. 18, 19, 20
Glasgow Engraving Co., Ltd., 30, John Street, Glasgow .. 54
Grant, Thos. K. (Successor to Lumière N. A. Co.), 89, Great Russell Street, London, W.C. .. 45
Graphic Arts Co., 1221, Spring Garden Street, Philadelphia .. 36, 37
Hamel & Co., E. Nottingham .. 53
Hellier-Denselow Studio, The, 40, Gunnersbury Lane, London, W. .. 48
Hentschel, Carl, Ltd., 182, 183 & 184, Fleet Street, London, E.C. .. *End sheet* vi
Heywood, F., Junr., Inkermann Works, Honey St., Cheetham, Manchester .. 35
Ilford, Ltd., The Britannia Works, Ilford, London, E. .. 4, 5
Inland Printer Company, 632, South Sherman Street, Chicago, Illinois, U.S.A. .. 61
Johnson, Wykes & Payne, Leicester .. 47
Jubb, T. G. & J., Brandon Street, Jack Lane, Hunslet, Leeds .. 17
Kidd, John, & Co., Ltd., 11, Wine Office Court, Fleet Street, London, E.C. .. 11
Kincaid, Malcolm 6, Frederick Lane, Glasgow .. 45
Lanston Monotype Corporation, Ltd., The 43 & 43a, Fetter Lane, London, E.C. .. 1, 3
Levy, Max, Wayne Avenue and Berkley Street, Wayne Junction, Philadelphia, Pa., U.S.A. .. 68
Lindenmeyr, Henry & Sons, 11 & 11b, Upper Thames Street, London, E.C. .. 29
London County Council School of Photo-Engraving and Lithography, Bolt Court, Fleet Street, London, E.C. .. 47
London & Provincial Reproduction Co., Ltd., Thornton Road, Bradford .. 32
London Stereoscopic Co., Ltd., The, 3, Hanover Square, Regent Street, London, W. .. 2
Lorilleux, Ch., & Co., 2, MacLean's Buildings, New Street Square, E.C. .. 16
Lund, Humphries & Co., Ltd., Percy, The Country Press, Bradford and London .. 40, 41, 80
Maddin, G. H. & Co., Ltd., 10 & 11, Middle Street, London, E.C. .. 56
Mann, George, & Co., Ltd., Larchfield Works, Leeds .. 8, 9
Marshall Engraving Co., Ltd., The, 12-14 Farringdon Avenue, London, E.C. .. 48
Mawson & Swan, Ltd., 13, Mosley Street, Newcastle-on-Tyne .. 27
Middows Brothers, (Australia), Ltd., 73, Clarence Street, Sydney, N.S.W. .. 54
Minton & Casey, 1, Clerkenwell Road, London, E.C. .. 34
"Modern Lithographer and Offset Printer," The, 124, Holborn, London, E.C. .. 59
Morris & Bolton, Ltd., 17 & 18, Tooks Court, Furnival Street, London, E.C. .. 13
National Printer-Journalist, The, Ravenswood Station, Chicago, Illinois, U.S.A. .. 62
Pacific Printer & Publisher, The, 140, Sansome Street, San Francisco, California .. 63
Parsons Fletcher & Co., Ltd., Gravel Lane, Southwark, London, S.E. .. 46
Payne & Sons, (Otley) Ltd., Otley, London, Glasgow .. 10
Peebles, A. M. & Son, Ltd., Rishton, Lancashire .. 32A

INDEX TO ADVERTISERS—*continued.*

	Page
Penrose, A W & Co., Ltd , 109, Farringdon Road, London, E C	4, 5, 36, 37, 38, 39, 48, 60, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79
Philipson & Son, Lisle Street, Newcastle-upon Tyne	33
Picken & Drysdale, Nelson Place, Edinburgh	45
Richardson Printing Ink Co , Limited, The, Team Valley Works, Gateshead	25
Royle, John, & Sons, Paterson, N J , U S A	64, 65, 66
Routledge & Sons, Ltd , 68-74, Carter Lane, E C	43
Scott Engraving Co , 32, Elder Street, Edinburgh	59
Shackell, Edwards & Co , Ltd , 5, Red Lion Passage, Fleet Street, London, E C	*End sheet* iii
Spicer, James, & Sons, Ltd , 50, Upper Thames Street, London, E C	30
Spicer Brothers, Ltd , 19, New Bridge Street, London, E.C	35
Stevenson & Co , David, 12, Brandon Street, Edinburgh	60
Swain, John, & Son, Ltd , Columbia House, 89 90, Shoe Lane, London, E C	*End sheet* iv
Taylor, Taylor & Hobson, Ltd , Stoughton Street Works, Leicester	76
Thompson, J R , & Co , Wharfedale Roller Works, Otley	42
University Press, The, Cambridge, Mass, U S A	52
Waite & Saville, Ltd , Falcon Works, Otley, Yorks	24
Wells, A C & Co , 107a, Midland Road, St Pancras, London	49
Williams Lloyd Machinery Co , 638, Federal Street, Chicago, U S A	78
Winterbottom Book Cloth Co , Ltd , The, 12, Newton Street, Manchester	*End sheet,* ii
Wratten & Wainwright, Ltd , Kodak House, Kingsway, London, W C	43
Yöst Typewriter Co , Ltd , The, 50, Holborn Viaduct, London, E C	15
Zeiss, Carl (London), Ltd , 13-14, Great Castle Street, Oxford Circus, London, W	6

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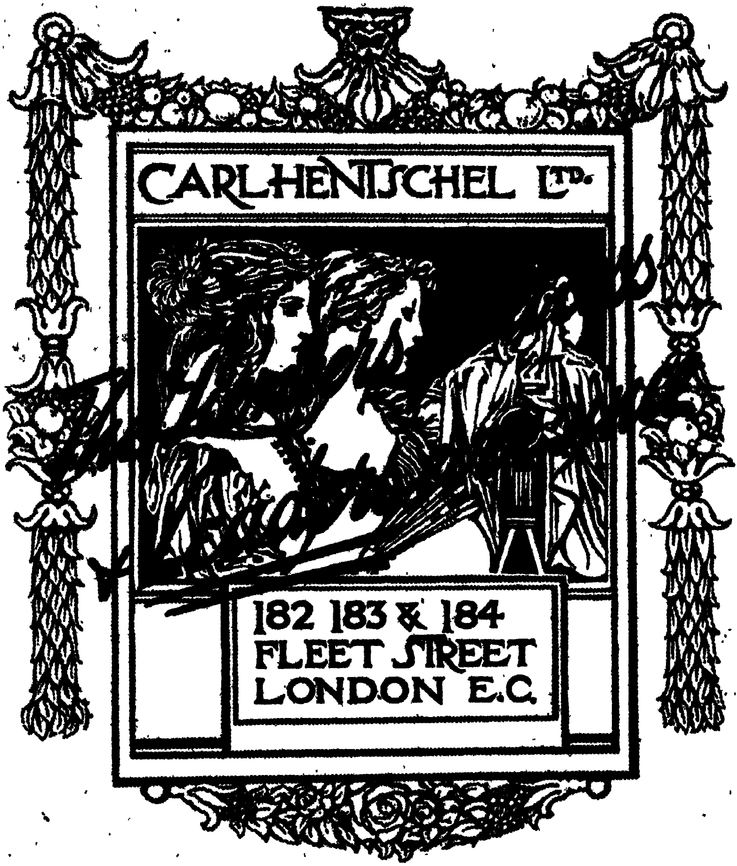

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